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REHABILITATION POTENTIALS IN SPINAL CORD AND CAUDA EQUINA INJURIES *

LOUIS B. NEWMAN, M.E., M.D.**

Chief, Physical Medicine and Rehabilitation Service

Veterans Administration Hospital

Hines, Illinois

What can be done to rehabilitate an individual with a spinal cord injury? How can this be done? How much time is required? What is needed? These are a few of the many questions that are frequently asked in regard to the rehabilitation of a person with a spinal cord or cauda equina injury. Some of these questions are difficult, in fact, impossible at times to answer. There are many factors that influence the rate and amount of rehabilitation possible. In dealing with a disabled person many variables effect the end result. It is only through a very careful and complete examination and evaluation, guided by experiences in rehabilitation, that one can make a good scientific prognostication.

Total rehabilitation leading to maximum usefulness of the individual with a spinal cord injury requires, to the greatest extent, the integrated and coordinated contributions of the medical specialists, the rehabilitation specialists, as well as all other services, that are available to the patient. The physiatrist, neurologist, neurosurgeon, orthopedist, plastic surgeon, urologist, internist, psychiatrist, psychologist, all of the personnel in Physical Medicine and Rehabilitation, the nurse, social service worker, recreational technician, dietitian, and others, must operate as a closely knitted team. All of the program planning should be individualized for the particular disabled person to fill his specific needs, physically, mentally, psychologically, and vocationally. The hospital plans for rehabilitation must include post-hospital planning in order to reach the goal of gainful employment which can be considered as going to school, on-the-job training, being self employed or employed by others. Maximum usefulness should be the motto.

From our experience at Hines^{1, 2} with approximately 900 patients with spinal cord and cauda equina injuries, it is felt that the following can be considered as the important factors influencing the rehabilitation potentials.

1. *Motivation of the Patient.*

A motivated patient is a cooperative one. It is the responsibility of those in rehabilitation to aid in the

motivation of the disabled. The patient should be aided in accepting his disability and further to accept indicated and prescribed medical and rehabilitation activities.

2. *Age and General Health of the Patient.*

We should not expect the same physical accomplishments from one who is 60 years of age as we would from one who is 20 years of age. All things being equal, the physical reserve and work capacity usually would be less at the older age level.

3. *Type and Extent of the Lesion in the Spinal Cord.*

Is the lesion complete or incomplete; anatomic or physiologic? Usually there is a greater degree of rehabilitation possible when the lesion in the spinal cord is incomplete. More recovery is also anticipated when the lesion is physiologic instead of anatomic.

4. *Level of the Lesion in the Spinal Cord.*

In most cases activity accomplishments are greater the lower the level of the lesion in the spinal cord. Further, the time needed for these accomplishments is proportionately less.

5. *Elapsed Time from the Onset of Injury to the Initiation of Rehabilitation Activities.*

The sooner after the injury rehabilitation is started, the better the results and less time needed for their achievement. Rehabilitation should start early and be continued for a sufficient period of time.

6. *Genito-Urinary Complications.*

Kidney and bladder infections and calculi definitely interfere with the rate and amount of rehabilitation. Not only do these complications effect the general health of the individual, but are factors in increasing the degree and/or frequency of spasms.

7. *Decubitus Ulcers.*

The presence of decubitus ulcers will also effect the rate and amount of rehabilitation. These can be better prevented than remedied. By increasing our knowledge in so far as the proper handling of this type of disabled person is concerned, decubitus ulcers can and should be prevented or at least decreased in number. Their presence has an unfavorable effect on spasms.

8. *Spasms.*

In addition to effecting the rate and amount of rehabilitation, spasms become very annoying to the patient. The institution of physical activities, the

*Read at the sixth annual Clinical and Scientific Conference of the Association for Physical and Mental Rehabilitation, Milwaukee, Wisconsin, July 9, 1952.

**Associate Professor, Department of Physical Medicine, Northwestern University Medical School, Chicago.

elimination of all infections, the removal of renal and bladder calculi, the prevention of bladder and bowel distention, and the element of time, in many cases, have a favorable influence in diminishing the frequency and severity of spasms.

9. Pain.

The degree of pain that may be present will effect rehabilitation participation. It appears that in many instances either pain decreases in severity and/or the patient's threshold for pain is increased with the passing of time, the elimination of infections and other complications, and active participation in rehabilitation.

10. Contractures.

The presence of contractures in muscle groups will decrease or prevent the ability to perform essential activities and will thereby effect the rate and amount of rehabilitation possible. The use of braces for ambulation is often delayed due to existing contractures.

11. Orthopedic Disabilities.

Conditions such as fractures, dislocations, and amputations effect the rehabilitation potentials and must be treated in order to proceed with prescribed activities.

12. Nutritional State.

Anemias, hypoproteinemia, reversal of A/G ratio, vitamin and other nutritional deficiencies must be

corrected for proper patient activity performance.

Preventive rehabilitation procedures must always be instituted. Complications such as contractures, decubitus ulcers, nutritional deficiencies, etc. are in most instances easier to prevent of integrated and coordinated activities of all concerned than does that of a spinal cord injury. The team approach is vital. Everyone in Physical Medicine and Rehabilitation (Physiatrist, Executive Assistant, Physical, Occupational, Corrective, Educational and Manual Arts Therapists, Vocational Adviser) contribute toward helping the patient with a spinal cord injury perform his self-care and daily living activities and secure a degree of dignity, happiness, satisfaction and the feeling that he can again become a useful individual in his community.

The problems and scope of rehabilitation are so tremendous and far reaching that we must continue basic and clinical research to further improve our technics in both the diagnosis and treatment of disease and injury.

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NEUROPSYCHIATRIC ASPECTS OF PARAPLEGIA *

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Dr. Francis J. Millen: Dean Young, Dr. Abramson, ladies and gentlemen: I should like to discuss with you this morning some of the fundamental and basic concepts we have learned in the study of Neurology, as it refers to the traumatic paraplegic; and in Psychiatry, in terms of the psychological adjustment or compensation-adaptation mechanisms present in an individual who has received a terrorizing experience, a traumatic lesion to his personality. At the risk of being repetitive, I will remind you again that we always consider the individual as a total personality, as a physical organism with a mind, with emotions. We have been taught more regularly during the last ten years, particularly in psychiatry, to avoid, if possible,

the dichotomy, or, if you will trichotomy of the personality, separating it off into these physical and mental or emotional areas. Actually, in order to understand a little more easily some of the effects human ills have upon an individual, the human being, it is a great deal simpler if we approach, first, the physical or organic elements of his disease, then later the emotional or psychiatric aspect.

I am not going to take anything for granted in terms of your knowledge of basic neuro-physiology because it is a complicated subject. Even those who are intimately concerned with it all the time constantly and everyday find new problems they cannot answer. Basically, what happens to an individual when he has a transaction or a severance of the spinal cord? He is affected in a physical sense in terms of separation of a lower part of his body from conscious cerebral control. Paraplegia differs from hemiplegia

*Except from talk given as part of the Panel on Paraplegia at the Sixth Annual Scientific and Clinical Conference of the Association for Physical and Mental Rehabilitation, Milwaukee, Wisconsin, July 1952.

in that in the former, the mind itself, the intellectual resources of the individual are unaffected. Actually, his mental grasp, orientation, judgment, and his thinking ability are all intact. In this sense the problem with a paraplegic is simpler. In another sense it may actually become more severe because he can more easily realize his incapacity. What actually happens is that these apparent impulses from the lower part of the body which ascend to the brain and help the individual to orient himself in space, in position, in relationship to the different parts of the body, are cut off, dissolved, as it were, from reaching these higher centers of knowledge and of orientation. The descending impulses arising from the brain, the cortex, and the deeper centers, all of which are either excitatory, inhibitory, or regulatory, are cut off from having their normal, natural influence on the lower part of the body. Naturally, the effect that is going to be produced depends, as mentioned previously, upon the level of the lesion, whether it is in the cervical cord, thoracic cord, or the lumbo-sacral region, the cauda equinae, etc. It depends also upon the nature of the lesion. For purpose of simplicity, we will remain with consideration of the traumatic paraplegic and avoid, if anything, any allusions to patients paraplegic because of such diseases as poliomyelitis, abscesses of the spinal cord, tumor of the spinal cord, etc. There is a third factor that complicates the problem. This is the associated or complicating diseases, the infection of the bladder, decubiti, and the other disorders that befall the patient with paraplegia.

As a result of this cutting off of higher cerebral centers, that part of the body controlled by the spinal cord at the level and below the level of the lesion takes on a more primitive reflex type of activity or living. Fortunately, the spinal cord has within itself certain automatisms which can persist in spite of the lack of cerebral control. The effects of such a lesion are felt in an acute sense immediately following the injury. Sometimes we use the term which is becoming somewhat outmoded, namely, "spinal shock," in reference to this. It was formerly referred to as diaschisis, or the interruption entirely of neuronal activity, which is usually of a transient period lasting only several hours or days, sometimes weeks, and then followed by the chronic effects. Immediately following severance of all activity coming down from the brain, there is loss of motor power and complete, flaccid paralysis develops. Sensation is interrupted so that there is loss of feeling of all modalities of sensation, whether it is touch, temperature, pinprick, cotton touch, deep position sense, vibratory sense, etc. The autonomic activities of the central nervous system, such as control of the bladder and bowel and the vasomotor control, are all deeply affected immediately following the injury. Within the first few weeks or so

of such a spinal cord injury, there are remarkable changes in the metabolism of the individual. One of the greatest contributions in recent years coming out of studies made of paraplegics, is the function of the spinal cord in relation to metabolism: Its function, for example, in control of protein breakdown and protein reserve in the body; the blood changes that occur immediately following paraplegia producing anemia and the like; and disturbances in water balance, and the electrolyte balance. Non-protein nitrogen collection in the blood is usually associated with renal diseases secondary to the lesion. On the other hand, the defect in heat regulation and temperature mechanisms and sweating mechanisms and some of the peculiar conditions occasionally seen, such as gynecomastia or swelling of the breasts, have all been linked directly or indirectly to the spinal cord dysfunction. Of course, the male and female changes with sexual impotency, infertility, and menstrual changes are well known to you. These are some of the more acute effects.

Later on one sees, as these more primitive patterns of reflex activity take over, the advent of spasticity and the pseudo-spasms to which reference has been made and the development of paraplegia in flexion, which is always a trying problem for everyone. Sensation basically remains the same and is lost. Bladder and bowel fortunately have automatic control which can develop. Properly treated, every patient with a paraplegia should be able to be trained to an automatic bladder and bowel. In the chronic stage the metabolic changes to which I referred, very frequently tend to clear up and equalize themselves. Sexual changes referred to remain the same. However, the peculiar ability of an individual to stimulate, for example, priapism in the male, sometimes enables him to enjoy some of the benefits of sexual relationship, thus even that more primitive impulse is allowed action. Infections that develop in the urinary tract become troublesome in the chronic stage. With modern treatment, contractures, deformities, etc., fortunately are avoided, while the primary problems are those of spasticity. I can't go into all the details of its basis or origin, but it is probably best understood in terms of the stretch reflex, the element of afferent sensory impulses coming in and stimulating the anterior horn cells which remain in the spinal cord, and in then producing spastic contracture of the muscles.

The treatment of all these neurologic complications I shall leave more or less to the other members of the panel and to our discussion period. It can be said that there are specific treatments for some of the metabolic complications which occur, the endocrine disorders, the decubiti, etc. All of you are aware of reconditioning and ambulation exercises designed to prevent complications, to develop self-care and

transportation in the individual.

From the psychiatric standpoint, what happens to the individual who has his back broken? I use that term because in psychiatry we have a sort of thinking called the organ language concept of the individual. An example might help to clarify this idea. We refer, for example, to the organ neurosis as expressing deep underlying emotional conflict. A patient, for example, comes in with a chronic complaint of stiff neck or pain in the neck. Actually, after going into his history, we find that he has an uncomfortable situation at home or a work situation he does not like. It gives him a pain in the neck. That is where he develops a symptom. His work load is too heavy. He just can't seem to stand it. So he develops a backache. Or his boss is such a tough individual that he just can't accept going in to see him in the morning, so his job makes him sick at his stomach. In other words, these are terms people use in everyday language, and they are transferred by the psychiatric patient into an organ symptom. This is the language of the neurotic.

An individual with a broken back has, in fact, lost the ability to run away from his problems; to run towards or in the direction of and pursue his desire; to run away from or towards or turn away from the unconscious conflicts, unconscious urges, desires, drives, instincts, impulses, all of which are contained within him. This makes him a physically incompetent individual. It makes him a psychologically insecure, a sexually impotent, and a socially inadequate individual at the beginning. These are the things we must overcome from the psychiatric standpoint. In every individual there is a dynamic psychological reaction that occurs in response to any situation or event. This is understood in terms of the total personality, as I indicated before, and understood only in terms of the uniqueness of the individual personality. It is different for every individual. It is easy and reasonable to assume that there are no two persons alike in every way, since not everyone has had the same background, experiences, etc. This dynamic reaction I am referring to depends entirely upon the personality structure of the individual. What are his fears, his hates, his loves, his likes and dislikes, his traits and attitudes? How does he act in his interpersonal relationships with other people? How mature is he in his emotional control of his own anxiety and his own hostility? Everyone has within himself a reservoir of anxiety, present in him, in fact, according to some psychiatrists, at the very time of birth. Life consists of learning to handle these anxieties. The mind fortunately has many psychological mechanisms within itself to control anxiety. We call these Defense Mechanisms. Some are healthy, useful ones, others by their nature create even greater problems.

A traumatic incident like a traumatic paraplegia renders a patient helpless and renders him unable now to control his latent anxieties in the same way he used to. So he must deal with his anxieties in new ways. To understand the paraplegic, one must consider him as a human being with all his hates and aggressions, his tensions, fears, and his anxieties. It is important to evaluate all his assets and all his liabilities contained in his personality. The rigidity of his personality and how strongly his defenses have been developed over the years have to be considered in any action a therapist or individual working with a paraplegic must take. Anxiety and fears are the primary underlying disorders of the personality that occur. Later on in the chronic stage of the disease come boredom, helplessness, insecurity, dependency, hospitalitis, even compensation-mindedness. Many of these things and their control depend upon certain mechanisms of the mind and emotional system of compensating for all the destructive elements of his disease. There are many compensatory phenomena of common knowledge. For example, the individual who cannot walk develops peculiarly wonderful aptitudes with his hands. The patient who cannot see develops unusual sensations of hearing and feeling and touch. In other words, the loss of one sensibility sharpens another.

There is within the personality compensatory mechanism a peculiar phenomenon termed *Acceptance* or the ability of the individual to accept his disability in terms of his entire personality. The meaning, the psychic investment, that that individual has made upon his body in terms of his mind is the significant psychological concept. *Motivation* inherent in every individual has already been referred to and is dependent upon the patient's previous personality. More important than this, the personality, being a dynamic factor, can be retrained. New desires and satisfactions can arise out of favorable experiences, carefully planned by those persons working with and coming into contact with the paraplegic. Unsatisfactory experiences, on the other hand, can reap an even greater harvest of frustrations, resentments, hostility, and open aggression. These are the reasons for careful attention to the basic needs of the injured personality and understanding the paraplegic's total personality.

To close, a few ideas or suggestions are offered from the psychiatric standpoint of your approach to these patients. Keep always in mind that in the interpersonal relationship of the patient-therapist a microcosm is being formed in which the patient learns adjustments to new experiences as a changed person. As you act toward him, he will learn to react toward you. The therapist must be able to stand the patient's hates, his aggressions, and his hostilities. All

these unpleasant feelings are within the injured personality often magnified to large proportions. Yet, the patient must be allowed to act out and talk out his resentments and hostilities and aggressions within limits and with a certain amount of control. Constructive criticism must always be carefully given. The sensitive, hurt individual seldom accepts it graciously. The paraplegic's thought must always be directed away from his physical disability and toward his potentialities. In this way we can help him develop self-respect and self-reliance. Firm understanding is the rule and molly-coddling is out. Learn to always be realistic in your approach. Always be hon-

est in answering questions put to you but don't try to answer it too much detail. Refer technical questions to the proper persons and so avoid confusion. Finally, remember that a cheerful smile and a helping hand are necessary parts of a therapist in relation to a paraplegic but there can be no substitute for understanding human nature with firmness and kindness. The patient therapist must be able to withstand open aggression and hostility. He must be mature in his own feelings. Then only can he lead the paraplegic back along the road of recovery and help instill faith, desire, motivation, and determination in this traumatized personality.

THE PRESCRIPTION OF EXERCISE AND ACTIVITY*

EVERILL W. FOWLKS, B.A., M.A., M.D.

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For many years the severely disabled patient who was so unfortunate to have suffered a spinal cord or cauda equina injury was a badly neglected individual. Lack of proper understanding as to what could be salvaged from his damaged goods was the usual cause which prompted many a pessimistic physician to condemn him to a slow death in bed by pulmonary or renal infections. A few more of the selected or optimistic physicians were bold enough to place these patients in a wheelchair but almost no one thought about brace and crutch walking activities or daily demands of living.

Today all of us in rehabilitation activities realize that all patients with thoracic and lumbar lesions can travel about and meet the daily demands of living by the use of braces and crutches if they have the will to do so. The etiology of the lesion is only secondary in our thinking as the prognosis is dependent upon the program of daily activities and exercises designed for each individual plus the great determination of the patient to walk again. One also must not overlook the fact that the therapists are more than "instructors" or "muscle men" but are one of the largest single motivation factors necessary to spark and develop the patient's determination.

All severely disabled patients should be carefully screened by the physiatrist or physician as to when to begin treatment and what types of treatments are required. Spinal cord lesion cases must be considered

under four distinct phases for rehabilitation: they are the neurological, urological, surgical and physical-mental rehabilitation. The first three phases are carefully cared for by the physician or specialist in those specialties and we in Physical Medicine Rehabilitation are charged with the last phase and thus must deal with the problems of self-care, locomotion, morale building and future employment possibilities, along with social readjustment.

Rehabilitation not only should play an essential role but the most important single treatment unit and should be started as soon as the spinal shock has subsided. The only contra-indication to starting a full rehabilitation program early, is that of toxicity associated with urinary tract and decubital ulcer infections. These cases should be given limited and intelligent procedures to prevent contractures; muscle atrophy and deconditioning in general so as to not delay, but speed the ultimate need, that of maximum adjustment and function of the individual and his system toward a complete as possible goal of future physical, mental, vocational and social readjustment to the fullest needs for his future life compatibilities with his disability.

The physiatrist or physician must therefore carefully and fully plan the patient's future needs in order to write an intelligent prescription of exercises and activities so that one activity is conducted in an orderly manner until it has been mastered and then flows or emerges automatically into the next activity. This paramount requirement is often overlooked and the patient then becomes disappointed because he

*From a panel discussion on Paraplegia delivered before the Sixth Annual Convention of the Association for Physical and Mental Rehabilitation; Hotel Schroeder, Milwaukee, Wisconsin; July 9, 1952.

Muscle physiology discussion would naturally become very complicated, long and detailed if we discussed it fully in this paper so we will make our remarks brief in order to cover the essential factors. A muscle is composed of definite protein elements, carbohydrates and minerals, all of which undergo certain molecular changes during the phases of rest, excitation, contraction and relaxation. The muscle metabolism in health and disease thus is not a constant factor but variable with each individual and the amount of activity or the type of activity which he is capable of performing. The simple biochemistry of muscle contracture as taught a few years ago of its breaking down and rebuilding of the carbohydrates into simpler or more complex sugars and lactic acid is now much more complicated as one can easily see from the following chart which A. Szent-Gyonggi has so completely and capably presented in his textbook, "The Chemistry of Muscular Contraction, Second Edition."

In other words, the alteration or combination or separation of the muscle proteins, actin and myosin, is dependent upon the presence of abundance of adenosinetriphosphate (which is broken down into adenosine biphosphate plus phosphate during muscle relaxation or re-combined into original ATP to complete the cycle). We like to consider this in light of a more biophysical than chemical re-arrangement of molecular structures or compounds in a fully and completely reversible manner.

whole scheme of proper timing and cooperation with other muscles and thus the appropriate balance of power and elasticity is upset and may result in poor coordination. Therapeutic exercises are thus dependent upon all of these basic functions and the physiatrist must be able to decide which one should receive the major attention and which ones the minor attentions. Likewise, the movement from day to day must be identical for any given muscle so as to prevent different muscles from over developing by repetition because the dosage has exceeded the present demand for the particular function it has to perform. Therapeutic exercises employing identical daily functions automatically must meet the following elements to produce identical motions:

- The physiatrist must next logically consider the pathology encountered in the patient in formulating his exercise prescription in order to obey the myostatic reflex which is so important to posture and ambulation. Nature has supplied us with muscle spindle and their short-fiber reflexes in order to keep tonicity of our muscles and these spindles occur with much greater frequency in the extensor muscle groups which are so important to our erect posture. A complete balance is necessary between this unit and the long fibers or voluntary reflex activities if we are to ambulate normally. Spinal cord lesions by nature of their pathologies upset this balance and hypertonicity and spasm results in the muscles below the lesion level according to whether the denervation is complete or partial. The prescription must thus take into consideration this imbalance in order that proper active and active resistive exercises be used for further development of the normal muscles and passive for the abnormal muscles for the prevention of contractures, joint restriction or deformity and retardation of atrophy to the minimum rather than maximum. Likewise, one must always remember that inactivity, regardless of the cause, produces atrophy and favors substitution especially if the synergists become stronger or overstretching has occurred to reduce muscle power or produce painful reactions.

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er needs to be fast moving or slow moving according to the mode of ambulation to be used, as well as the future occupation the patient is capable of performing. He must remember next that endurance develops through succession of long periods of exercise and that this endurance is developed by the amount of resistance and gravity applied and the number and frequency of the contractions applied. The endurance time is favored if fatigue is carefully watched for and especially in a pathological muscle where it may be greatly reduced to an extremely low level. This reduction of muscle reserve by pathological changes requires that at first the activities must be as simple as possible and the warm-up period be strictly observed.

The prescription now written will be definite and precise as to the region or muscle exercised, the exact type of exercise required, the type of exercise to be given to the whole body or the particular extremity or joints involved, the dosage and the optimal load which is approximately three-fourths of the maximal load. It will therefore outline which muscles are to be exercised actively, passively or active-assistive or active-resistive. It will further note the need of stretching exercises for contractures, reflex relaxation exercises for the physiological elasticity or contractive ability and passive stretching of the denervated muscle along with relaxation exercises for the over-active or spastic muscles. It will contain the well-known formula that work plus time equals endurance and thus the treatment time will be given, the number of exercise or activity periods per day and will specify the exact weight and/or resistance or pull to be used.

Let us now consider a problem case; that of a paraplegia. First we must consider if he is to have permanent or partial paralysis, next to prepare and keep his extremities ready for braces at all times, next to improve and develop his upper extremities and trunk muscles by heavy resistive exercises for the management of crutches, the support of his body weight which is dead weight below his lesion level and added, too, by the weight of his braces, next to prevent contractures or deformities of the lower extremities while the extensors and flexors of the arms are being strengthened. Finally, the patient must be prepared for the daily demands of living and his return to society as an employable individual.

The prescription is thus divided into the immediate aim of employing relaxation exercises, stretching of contractures and building up of remaining muscles. The ultimate aim comes next and contains instructions for preparation for wheelchair activities, to be followed by crutch walking and finally meeting the daily demands for living which naturally brings about the final aim, that of proper coordination and work tolerance through the usage of the clinics of Occupational Therapy and Manual Arts Therapy.

Writing of such prescription is not enough as it must be varied for time to time by re-evaluation of the patient and how well he can meet or perform the following activities:

BED ACTIVITIES

1. Rolling
 - A. To right from back and return. (1) Onto right side from back. (2) Onto abdomen from right side. (3) Onto right side from abdomen. (4) Onto back from right side.
 - B. To left from back and return. (1) Onto left side from back. (2) Onto abdomen from left side. (3) Onto left side from abdomen. (4) Onto back from left side.
2. Moving Sideward Without Rolling.
 - A. To right.
 - B. To left.
3. Coming to a Sitting Position.
4. Bending Forward and Return.
 - A. Bending forward. (1) To touch knees. (2) To touch toes.
 - B. Return.
5. Balancing While Sitting Erect. A. Touching downstretched arms to sides. B. Raising downstretched arms sideward to shoulder level and lowering. C. Raising downstretched arms forward and lowering. D. Raising downstretched arms overhead and lowering.
6. Moving in Sitting Position. A. Forward. B. Backward. C. Sideward.
 - (1) To right. (2) To left.
7. Sitting erect, Legs over Edge of Bed. A. Placing hands on thighs. B. Raising downstretched arms sideward to shoulder level and lowering. C. Raising downstretched arms forward and lowering. D. Raising downstretched arms overhead and lowering.
8. Moving Out of Bed and Return. A. From bed to wheel chair. B. From wheel chair to bed.

WHEEL CHAIR ACTIVITIES

9. Raising Body Out of Wheel chair by Means of Arms and Return.
10. Balancing While Sitting. A. Crossing right leg over left and replacing. B. Crossing left leg over right and replacing.
11. Controlling Wheel chair
 - A. Raising and lowering footrests. (1) Right footrest. (2) Left footrest.
 - B. Propelling Wheel chair. (1) Rolling (a) Forward. (b) Backward. (2) Pivoting.
 - C. Stopping and braking wheel chair with sand-bags
12. Moving to Chair and Return. A. From wheel chair to chair. B. From chair to wheel chair.
13. Moving to Mat on Floor and Return. A. From wheel chair to mat. B. From mat to wheel chair.

MAT ACTIVITIES

14. Rolling. A. To right side. B. To left side.
15. Coming to a Sitting Position.
16. Bending Forward and Return. A. Bending forward. (1) To touch knees. (2) To touch toes. B. Return.
17. Balancing While Sitting Erect. A. Touching downstretched arms to sides. B. Raising downstretched arms forward and lowering. D. Raising downstretched arms overhead and lowering.
18. Raising Body off Floor in a Sitting Position with Arms and Lowering.
19. Moving in a Sitting Position. A. Forward. B. Backward. C. Sideward. (1) To right. (2) To left.
20. Raising Body off Floor in Face Lying Position with Arms and Lowering.

21. Balancing on Hands and Knees. A. On both hands and knees. B. On right hand and knee. C. On left hand and knee.
22. Crawling. A. Forward. B. Backward. C. Sideward.

STANDING ACTIVITIES WITHOUT CRUTCHES

23. Managing Braces. A. Locking. B. Unlocking.
24. Coming to a Standing Position and Return. A. Getting out of wheel chair. B. Standing at gym or Bebinelle parallel bars.
25. Walking between Parallel Bars. A. Forward. B. Backward.

In conclusion I wish to point out that the patient's progress and ultimate goal is no better or no faster than that made possible through the exactness and detailness of the prescription of exercise and activities.

THE ROLE OF NEUROSURGERY IN REHABILITATION OF THE PARAPLEGIC PATIENT*

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Interruption of spinal cord function predisposes to many complications, some of which are amenable to neurosurgical intervention. It is the purpose of this paper to discuss several of the more important problems of paraplegia and to emphasize the need of close contact between the surgeon and therapist in early detection of complications to insure speedy rehabilitation.

The problems of the paraplegic patient responding to neurological surgery are spasticity, pain, an improperly functioning bladder, the pressor reflex and ureteral reflux with repeated urinary tract infections. All of the above conditions are capable of interrupting and delaying a well-planned program of rehabilitation and their presence may first be noted by an alert therapist or well-informed patient rather than the patient's physician.

Spasticity of the muscles of the pelvis and lower extremities when severe may make brace ambulation impossible as well as interfere with the patient's self-care and routine activities. The resulting withdrawal from activity seems only to increase spasticity and favor contracture formation. The spasticity may also encourage formation of decubiti or impede their

treatment to say nothing of the fostering of malnutrition and draining of the patient's energy. Munro,¹ Freeman and Heimburger,² and Macdonald, McKenzie and Botterell³ are among those who advocate an anterior rhizotomy for relief of spasticity. The resulting relief of spasticity, gain in weight, improvement in well-being and ease of indicated care for any decubiti bring about steady progress toward the patient's rehabilitation goal. Peripheral nerve crushing or cutting procedures are indicated only occasionally in special instances for relief of isolated spasticity. Total lumbosacral rhizotomy⁴ may be indicated in those patients with spasticity and non-functioning bladders after careful pre-operative testing in order to couple relief of spasticity with an automatic bladder which can be emptied at will by straining, thus increasing social adaptability.

Pain frequently follows spinal cord pathology and may be of sharp radicular character in cauda equina or nerve root involvement or of a burning and aching nature experienced below the level of cord involvement. Pain of such severity as to interfere with rehabilitation or predispose to narcotic addiction must be relieved if the patient is to progress. Bilateral lateral spinothalamic tractotomy has been found to be of definite value in the relief of radicular pain resulting from injury to the cauda equina.⁵ Experience in this clinic also suggests that bilateral lateral spino-

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thalamal tractotomy in the upper thoracic region is instrumental in relieving severe burning pain in most of the patients so afflicted. However, in the experience of others,⁶ burning pain has not been found to be effectively dealt with by spinothalamal tractotomy. Pre-frontal lobotomy for relief of pain is certainly contraindicated in a rehabilitation program where motivation and the patient's earnest cooperation are necessary. Posterior rhizotomy and lumbar sympathectomy have been found to be ineffective in dealing with pain problems of the paraplegic patient.

An improperly functioning bladder may result in some social withdrawal by the patient or interfere with an intensive rehabilitation program. However, the intelligent use of tidal drainage and bladder training as advocated by Munro⁷ will usually result in a satisfactory bladder situation. When this is not the case, it has been found that differential sacral nerve blocks with novocain will indicate in which patients the bladder can be emptied at will by straining without incontinence. Such a favorable situation develops in approximately 25 per cent of patients undergoing sacral block studies. Surgical reduplication of the successful sacral block by sacral neurotomy⁸ then results in permanent bladder automaticity in approximately 60 per cent of the patients selected by sacral block studies. Thus the conversion of a non-functioning bladder by sacral neurotomy into a controlled automatic bladder facilitates the patient's progress toward complete rehabilitation.

The pressor reflex is a mass automatic reflex which may be clinically significant in spinal cord lesions above the mid-thoracic level. This is characterized by a severe throbbing headache, marked rise in blood pressure, profuse sweating usually above the level of myelopathy, slow pulse, nasal congestion and shortness of breath. Such symptoms may be elicited by stimulation of the legs or saddle area, catheter change and enemas. The headache may become somewhat chronic and may markedly impair the patient's participation in an active rehabilitation program. In treating this condition Bors and French⁹ have advocated an extensive posterior rhizotomy including all roots below T₆. However, personal experience suggests that a more simple sacral rhizotomy suffices in most cases to eliminate the pressor reflex. One can immediately visualize the difficulties in working with a patient who has this very troublesome phenomenon, relief of which again makes possible the patient's wholehearted cooperation.

The last complication to be discussed is that of ureteral reflux which may result in repeated urinary tract

infections, thus temporarily restricting the patient's activity to say nothing of sapping his energy. In such a condition there is an incompetent ureterovesical junction which allows reflux of urine from the bladder to the kidney. Ureteral reflux on routine cystogram¹⁰ has been found in approximately 23 per cent of cases with spinal cord lesions and is a marked threat to a smooth course of rehabilitation. If a patient with a spastic bladder and ureteral reflux has repeated urinary tract infections, it has been found in this clinic that a sacral rhizotomy to relax the bladder combined with straight catheter drainage will usually result in a postoperative course free of urinary tract infection, thus speeding the patient in his rehabilitation.

The above five complications of paraplegia are some in which neurological surgery may be of value in insuring a speedy course to adequate rehabilitation. When such a program is in progress, it is often the therapist who is first aware of the patient's mounting difficulties with spasticity or his frequent absence due to pain or infection. This places the therapist in a position where early detection and close contact with the patient's physician and neurosurgeon can result in facilitation of a progressive rehabilitation program.

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AN ADAPTED BICYCLE HANDLE BAR

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Therapists who have had experience in using the Stationary Bicycle as a therapeutic aid in the treatment of spastic hemiplegia have observed patients with severe wrist-drop leaning forward toward the affected side in a very pronounced insecure, strained position. This paper describes an adaptation in the form of an improvised handle bar for the Stationary Bicycle. It was designed and developed by David Anderson, Corrective Therapist, Veterans Administration Hospital, Long Beach, California, to correct the above-mentioned hemiplegic condition; its history, construction, application, treatment values, and type of patients treated, are discussed. Heretofore the method of stabilizing the wrist and securing the patient to the apparatus has been to attach the hand to the handgrips with an elastic bandage (See illustration No. 1). This method is recognized to be both dangerous and time consuming in its application.



1. Elastic bandage method of securing the hand to the handgrip. Note patient leaning forward over handle bars.

In early application of this adaptation, when the patient is seated on the bicycle and the affected hand is ready for placement on the inverted "U" bar, it

The new adaptation consists of an inverted "U" shaped $\frac{3}{4}$ " galvanized bar welded to the handle bar just 2" in front of the handgrips at a 57 degree angle, toward the bicycle seat. This places the crest of the bar 17" above and directly over the handgrips. No other construction is necessary since the variation in elevation and other relative positions are made with standard adjustments. (See illustration No. 2).



2. Note inverted "U" shaped bar. Improved wrist position is shown as result of new bar. Note elimination of elastic bandage and natural grasp of hand. As a result of new grasp, note improved body position.

may be necessary to reduce muscle spasm by graded stretching of the flexors of the fingers, wrist and elbow, as well as the extensors of the shoulder before proper application is possible. The hands rest on the bar in pronation. Following the first or second treatment, the patient is much more at ease when using the equipment.

The value of such an adaptation is significant since there is an immediate improvement in the patient's posture. (Compare illustration No. 1 with No. 2.) There is no longer a pronounced shoulder drop, scoliosis or kyphosis, as compared to the previous level

and method of attachment, and the patient sits more erect. The wrist condition is improved since considerable stretching takes place during treatment because of the new hand position. (See illustration No. 2.) The patient gains more support and thus feels more secure. Psychologically most patients show good progress. The new grasp eliminates the abnormal method of binding the hand to the handgrip. (See illustration No. 2). In addition, the time of the therapist is saved by not applying the elastic bandage. The therapist need not stay close to the patient to give support since the new grasp is safe for this type of patient. In this particular case the spastic finger flexors afford the patient a secure grip on the bar, giving a well balanced body position while exercising the lower extremities. (See illustration No. 2.)

In addition to the spastic hemiplegic patient, other type patients such as those with Parkinson's Disease, arthritis, multiple sclerosis, and residuals of poliomyelitis receive varying degrees of benefit from this type of handle bar. Although all patients are not in need of this type of support, many prefer it to the standard handgrip because of the improved balance position.

SUMMARY

This paper describes an improvised and adapted

handle bar for a Stationary Bicycle designed to meet the problems of seating the hemiplegic patient in a well balanced position so that he is able to exercise his lower extremities and improve his coordination, endurance and strength. Construction plans for reproduction are presented. The physical and mental treatment values derived through its use are discussed briefly. Also discussed is the elastic bandage method of hand attachment. Finally, various types of patients deriving benefits from the innovation are presented.

CONCLUSIONS

1. Patient's posture is improved through the use of Anderson's "Adapted Bicycle Handle Bar."
2. A definite saving of therapist time is made through the use of this adaptation.
3. Definite physical and psychological improvements because of better body positioning and support were observed.

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A PRACTICAL APPROACH TO THE TREATMENT OF BRACHIAL BIRTH PALSY

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Since 1945 twenty-six children with Brachial Birth Palsy, commonly known as Erb's Palsy, have been admitted for treatment in our department. Four of these children admitted recently were under six months of age. They had a severe whole arm paralysis. The result of their treatment can only be evaluated after some time, and therefore they are not considered in this paper. The other twenty-two children were older at the start of treatment, one of which has been treated regularly since the age of one. The others came partly from private physicians, partly from other hospitals; some had been in and out in our clinic, and some had not been treated at all. They all showed the characteristic, but also widely varying and confusing, symptoms of Erb's Palsy. Many of them had severe contractures and seemed to have forgotten the use

of the involved arm. Their postures were usually bad; they were disturbed, awkward in gait and manners. The usual treatment, consisting of stretching and weight lifting did not seem to be too satisfactory. The published material on the therapeutic procedures for Erb's Palsy is relatively small. I decided to study the underlying factors of Brachial Birth Palsy in order to be able to help these patients more.

In Erb's Palsy two cases are rarely alike in degree and distribution. Any individual case seldom fits exactly into one of the commonly defined types. A study of the fibers of the various roots through the plexus will explain the apparent bizarre distribution of paralysis, for example the rupture of one root will not necessarily cause complete paralysis of a muscle deriving innervation from two or more roots, whereas

a section of one cord may cause complete paralysis of its circumscribed synergistic group.

Some babies recover within six months; those who do not will have a permanent damage. But the bearing which this lesion finally has on the efficiency of the arm, seems to depend on many other conditions, which are in remote connection with the primary damage.

To illustrate the problems we encounter in dealing with Erb's Palsy, five cases and their development during the treatment in our department will be described briefly. A detailed analysis of the methods will be given in detail later.

Case 1. Nina began treatment in our department at the age of seven. *Previous case history:* Both arms had been paralyzed, the right one completely and the left one to a minor degree. She had been later in walking. Former treatment consisted of a brace and electrical stimulation.

Status at admission: Severe contracture in the shoulder joint. Elbow flexion contracture of 45 degrees. No apparent power in the deltoid and triceps and all the other arm and shoulder muscles weak. Outward and inward rotators very tight. Wide winging scapulae. Protruding abdomen. Tight back and hamstrings. The right arm hung lifeless at the side. She did not use the arm for eating, dressing, etc. Her gait was awkward; she seemed to be depressed and had a definite inferiority complex with regard to her younger sister "who is able to do everything."

X-ray indicates: 1) upward displacement of the acromio-clavicular joint, 2) shallow glenoid fossa and underdeveloped humeral head.

Main deficiencies: Inability to move in the gleno-humeral joint. Great inefficiency in the use of the right arm and hand. Very poor coordination and posture.

Having to cope with the already established severe changes in the shoulder joint and the bones related to it, our treatment concentrated on: 1) muscle training and stretching as far as still possible, 2) arm swinging in the gleno-humeral joint, especially with Indian Clubs, 3) posture and coordination exercises in our special class, 4) such activities as playing with a big ball, jumping rope, punch ball, sewing, knitting, etc.

Lina is now thirteen years old, a beautiful teenager with perfect posture, poise, and good coordination. Her muscles have improved somewhat, especially her wrist and finger muscles and trapezius and rhomboids. She still cannot raise the arm above 90 degrees and the abduction is almost purely scapulo-thoracic. Her passive range of motion in the shoulder is nearly normal, her elbow flexion contracture decreased to 15 degrees. She can reach wherever she wants by swinging the arm without twisting the trunk. She belongs to a

youth club and often participates in exhibitions. She plans to be a seamstress.

Case 2. Louis started in our department at the age of seven. *No previous case history* except for diagnosis and treatment with a brace. *Status at admissions* Almost complete ankylosis of the right shoulder joint. Very tight pectoralis muscle. Tight inward and outward rotators, but active through a small range. Biceps and triceps fair, wrist and finger extensors poor. Both scapulae winged markedly. Scapula on the involved side almost in a sagittal plane, with the vertebral margin sharply prominent, while crossing arms in front of body.

X-ray indicates: 1) underdevelopment and decalcification of the bones of the shoulder girdle and humerus, 2) glenoid fossa extremely shallow; some enlargement or hypertrophy of the coracoid process of the scapula. *Main deficiencies.* Unable to reach mouth, head, or the small of his back with the right hand. Did not know how to use his arm and consequently did not participate in activities with his age group. He was tense and did not want to be treated.

Our treatment concentrated on 1) individual muscle training and stretching, and as strength improved, heavy resistance exercises, 2) arm swinging in the gleno-humeral joint, 3) activities on stallbars and parallel bars, posture and coordination exercises in our special group, crafts in the occupational therapy department.

At ten years of age Louis could reach his mouth, head and back with his right hand. He had shoulder forward flexion of 115 degrees and could travel on the parallel bars. His posture was good, but the tightness of his pectoralis still existed and a "Sever" operation was performed. After the operation his shoulder forward flexion and outward rotation gradually increased. He had lost inward rotation and the ability to swing on parallel bars. Now, one year after the operation he has shoulder forward flexion to 130 degrees and abduction to 100 degrees. His scapulae are held close to the ribcage. He is very cooperative in every respect and participates in school activities and street games. He does a good job in crafts.

Case 3. Gertrude started in our department at the age of fourteen. *Previous case history:* Her left arm had been completely paralyzed and the muscles had developed slowly during treatment in another country which was interrupted because of the war. The treatment consisted of a brace and exercises.

Status at admission: Severe inward rotation contracture in the shoulder joint. Slight flexion contracture in the elbow joint (20 degrees). Muscle power of the arm fair. Hand normal. Shoulder forward flexion passively to 150 degrees, actively to 120 degrees and abduction to 100 degrees.

X-Ray indicates: moderate osteoporosis of the bones of the elbow joint. *Main deficiencies:* Inability to reach the mouth with the left hand, because of tightness of the inward rotators and abduction contracture of the shoulder. Tight back muscles and sway-back.

The treatment concentrated on: 1) heavy resistance exercises and stretching according to disability, 2) parallel bar exercises, 3) group work, especially to overcome contractures, back tightness, etc.

After three months of treatment Gertrude could reach her mouth with her left hand, though awkwardly. Now, after one year she has shoulder forward flexion to 170 degrees passively and actively to 145 degrees, forearm extension to 180 degrees. She swings on parallel bars, moves with poise and has acquired a graceful way of using her affected arm.

Case 4. Gloria came to the department at the age of one. *Case history:* The whole left arm was paralyzed. The treatment consisted of a brace and electrical stimulation. Her x-rays were negative, except for moderate osteoporosis in the forearm. At the age of one and a half exercises were added. At the age of two she elevated the arm and extended the wrist. At the age of three she had shoulder forward flexion above 90 degrees and grasped properly. Outward rotators were slightly contracted. At the age of three and a half Gloria was discharged and returned two years later.

Main deficiencies: Severe outward rotation contracture. Inability to abduct or extend the arm or to pronate the forearm. Could not reach her back with her left hand. Very weak abdominals. Lordosis.

The treatment consisted of: individual muscle training and stretching according to disability. Weight lifting increased from one to six pounds. Posture and coordination exercises were started at once in our special group and helped her considerably to improve the efficiency of her arm.

Gloria is now eight years old and has almost pure abduction to 100 degrees and shoulder forward flexion to 130 degrees. The outward rotation and supination contractures are not quite overcome. She has very good posture and coordination, jumps rope, knits and plays the piano.

Case 5. Morton started treatment in our department at the age of one. *Previous case history:* Brace and exercises carried out by the mother. *Status at admission:* Paresis of all arm and shoulder muscles of the left side. Did not yet walk.

Exercises were started and he learned to walk at the age of one and a half. At the age of two he developed abduction and shoulder forward flexion of 90 degrees and learned the "wheelbarrow." At three he raised the arm above the head and extended it backward. Triceps and outward rotation were still weak.

Now at the age of four he has good muscle power in the entire arm, but some weakness in the trapezius and a slight restriction of external rotation. The hand muscles are fair. He has started on the parallel bars. When we introduced him to our group activities, we found that even Morton, whose arm has good range and strength, had difficulties in coordination and rhythm. He has been making progress since then.

These five children, mentioned above, showed muscular paralysis or weakness because of the original lesion. Furthermore, except for Morton who had been treated early and consistently, they and all the other 17 in our department suffered more or less from secondary or remote consequences of Erb's Palsy; these according to Alfred S. Taylor¹ could have been partly or completely prevented.

On these 21 cases we made the following observations:

- 1) X-ray reports as: a) underdeveloped and deformed glenoid fossa, b) underdeveloped and deformed humeral head, c) subluxation of the shoulder joint, d) displacement of the acromio-clavicular joint, e) hooking of the acromion process, f) bony contact between olecranon and humerus, g) uneven growth and retardation of the development of radius and ulna, h) general osteoporosis of the involved parts, i) scoliosis and kyphosis.
- 2) Uneven growth of scapulae, clavicles and upper extremities.
- 3) Limitations in the joints of shoulder, arm, wrist and fingers.
- 4) Muscular inefficiency not to be explained by the original lesion.
- 5) Incoordination.
- 6) Poor posture as in contrast to "correct static and dynamic posture".²
- 7) Behavior problems.

Looking for the causes of these irregularities we find that the deformities under 1 and 2 are in accordance with the law of Julius Wolff³ and due especially to the readiness of children's bones to adapt to stress conditions, in the case of Erb's Palsy to the normal development of muscle power and to the missing stimulation to growth which is motion.

Limitations in the joints as in observation 3 may be due to muscular imbalance. The stronger muscle, less damaged by the original lesion, has been used more than its antagonist which has been overstretched and therefore has had little chance to recover. Or they may be due to faulty position especially during infancy or to a brace worn too long. The ligaments then shorten and keep the joint in this position. Here too the bones adapt to this new position. (Observations e and f). Even if this is not so, these contractures tend to recur very readily as long as the child grows.

Often the efficiency of the arm seems not to be in proportion with the regeneration of the nerves, tested by the individual muscle strength. There may be several reasons: 1) The origin and the insertion of the muscles may no longer be in the correct position to produce an efficient muscular pull. We have to realize the possible changes in the growth of scapula, clavicle and head of the humerus and the ensuing change in the shape of the fossa. (Observations 1a, b, g, and 2). Considering the complicated "shoulder motion as the sum of the movements contributed by synchronous participation of 4 joints,"¹⁴ we realize what it means to the "shoulder rhythm,"¹⁴ even if one part only is in the wrong position. (Observation 1c).

3) Another cause for inefficiency is of course the established contracture, for example the contracted biceps hinders full extension, or because of lack of opposition the stronger muscle has shortened to an extent that no more contraction is possible.

4) Disuse following weakness, missing development of primitive motion pattern or resignation considering improvement may limit the possible usefulness of the arm.

Incoordination may be due to the children's unwillingness to use the affected arm at all. Poor posture is developed since pattern of following the path of least resistance persists and allows the trunk to move the arm. The awkwardness contributes to the feeling of inferiority, when it comes to competition with others. We should not forget a moment that these children have been growing up with a definite handicap in pursuing normal activities ranging from first exploring the world by pulling up to a sitting position to the boys fight in the street or the girls sewing contest.

When a baby with an extensive lesion in the brachial plexus is born, his arm hangs limply somewhere, partly or completely paralyzed. There is no tightness. Some months later, with slight and imbalanced muscle power coming back, limitations in the shoulder joint, tightness of inward or outward rotators, biceps or triceps, flexors or extensors of wrist or fingers develop. He needs our treatment right away to prevent as many as possible of those secondary consequences and most probably as long as he grows.

Our department proceeded to start on "Erb's school" by treating the infants. The treatment consists of:

A) Prevention of faulty position. 1) by a brace which has to be adapted to the special condition of the infant, especially to the comparative strength of inward or outward rotators, 2) by not allowing the baby to hold the arm in an abnormal position when out of the brace, and 3) by stretching beginning contractures. This has to be done very carefully, but through the full range, especially for inward and outward rotation.

In order not to damage the delicate muscles of a baby, it is best to try out the stretching ability of the normal arm first, thus using it as a guide. In case of an abduction contracture the mother is instructed to tie the arm to the trunk for a short while every day until it is put back into the brace. In case of a Klumpke type usually the extensors of the metacarpophalangeal joints are extremely tight and we have to stretch them well, hoping for the return of the lumbricales.

B) Muscle training by:

1) electrical stimulation

2) active exercises, which sounds like a solemn word to apply to a baby. One has to use every means to stimulate activity: a) the method Elizabeth Kenny describes in her book on polio, of touching the insertion of the muscle to stimulate contraction; it is very satisfactory in the stage of utter limpness, b) position placement reflex, c) confusion movement, d) conditioning. For example the scapula muscles can be trained by pushing the arm forward and backward and by abducting and adducting the scapula in rhythmic movements. Upward flexion and backward extension in prone position is not a frequent motion in infancy and can be encouraged by letting the arm swing forward and backward hanging over the edge of the table until the baby places it on the table where something desirable is placed.

c) Stimulation to voluntary motion:

Most babies with Erb's Palsy cannot bring the hand of the affected side to the mouth. They miss this first primitive motion and consequently readily give up the use of this arm completely. This primitive pattern has to be developed by all means actively or passively. We teach the baby to suck the thumb of the palsied arm, which besides promotes flexion, supination and thumb extension. We also show him how to take hold of the weak hand with the good one. It is extremely difficult to stimulate the use of the affected arm in a case where arm and hand are paralyzed. The baby has no or little sensation in the hand and experiences no desire to move it. Maybe a lollipop attached to his hand or the returning sensation with touching the warm bottle will catch his attention.

D) General exercises:

Some infants with Erb's Palsy need general strengthening exercises. They are restricted in their activities by their braces. They cannot pull up to a sitting position with a palsied arm, nor crawl properly. They are late in walking because of the missing balance. Watch a baby taking his first steps holding *both* arms to the side as a ropewalker does. The baby exercises devised by Neumann-Neurode⁵ are very useful from the fourth month of age on.

The mothers of course are taught how to carry out the exercises three times a day as soon as the doctor gives the order for exercises.

The older the child gets, the easier it is to make him exercise actively. We have crawling and wheelbarrow for shoulder girdle muscles and triceps. There are games such as holding something behind the back for arm extension, in the hand for supination and pronation. Pushing a wand with both arms forward and backward for biceps and triceps and high for shoulder forward flexion is useful and more resistance can easily be applied by the physiotherapist to the weaker side. I mention especially the games where both arms are in action and we find it advisable to alternate the right and left side during all exercises for the following reason. At the age of one or two years the baby gets conscious of his difficulty and is sometimes very reluctant to our emphasis on his weaker side. It is the time of setting handiness, which we should not disturb. He may be even in the process of shifting it, if his dominant hand is on the weaker side.

At the age of three or four children are grouped in a class. The treatment with electrical stimulation is continued. They get their individual exercises and stretching besides a thorough drill in coordination, rhythm and posture.

Individual Exercises:

Each child is instructed in individual exercises devised for his special ability and need. They include: a) heavy resistance exercises, b) stall bar exercises, c) parallel bar exercises, d) pulley exercises, e) exercises on the table for the first muscle education if necessary and exercises for inward and outward rotation in prone position, which are nearly always very much needed.

Stretching:

a) While stretching the *shoulder joint* great caution should be taken to hold the scapula close to the trunk, because in most of those cases, which are not treated constantly since birth, the inferior angle of the scapula rides outward and upward with every motion.

b) The stretching of the *elbow joint* has to be done in supine position including *supinators* and *pronators* and in prone position with the arm in external rotation extended backward and medially.

c) Usually the *Flexors of wrist and fingers* have to be stretched. The children do this themselves by pushing the arm down on a bench with the hand dorsiflexed to 90 degrees and the fingers extended.

d) In a majority of cases *inward and outward rotators* are contracted and sometimes both. The stretching is done manually in prone position with the forearm over the edge of the table or supine while pillows and weights keep the arm in the desired position.

Group Work:

So far the children do individual exercises. They are made responsible for performing them, supervised only by the therapist and helped if necessary. The

group work is done by all together. We do not take these children in a general posture class, because their problems are different and we want to prevent frustration. We had a very typical experience with a boy, 6 years old, who in another county had been in a regular posture class on the theory that he should be treated just like any other child. He had to discontinue the class because he was completely upset by the failure to accomplish as much as the others. All the exercises given had not influenced the contracture in his shoulder joint and the scapulae were winging, the coordination very poor when he started in our department. We often see that a child starting in our group with comparatively slight involvement of Erb's Palsy lacks completely the ability of coordinating movements of arms and legs, moves without rhythm and poise and has no feeling for the correct alignment of the body. On the other hand we watch with great satisfaction how those trained in the group moved with poise and coordination in such a manner that few would suspect the extent of their disability.

In this connection the importance of contact with the parents, who play a significant part in the success of our work, should be emphasized. We are aware of their hardship in bringing the children to the clinic for such a long time. However, since we started the group work, the "Erb's children" attended it with astonishing regularity—rain or shine. Besides the mother has to teach the patient self care as soon as possible using *both* arms for tying shoelaces, fixing buttons, combing hair, eating, making beds, folding sheets, washing and drying dishes, etc. We interest them in free-time activities as rope jumping, playing with a big ball, climbing and swinging, sewing and knitting and crafts, clay and weaving. Some children play the piano, some type and others do various activities in the occupational department of our hospital.

The *general exercises* are chosen to promote a good postural alignment, especially while using the affected arm. The children exercise in front of a mirror where they constantly have to pay attention to the symmetry of their trunk. They are not allowed to lean backward in order to flex the arm, nor sideways to abduct it, nor forward to extend it. If necessary they can help themselves by swinging the arm, or the normal arm can support the weak one. If these exercises are well performed, the contracted joints will get an additional stretching and each muscle on the involved side will be encouraged to voluntary active motion.

Description of Exercises

A) Special exercises for the use of the involved arm and the integration of its motion into movements of the other arm and the legs.

Standing:

1) Arms down at the side. Swing involved arm

across the body and back a few times until patient feels ready for complete arm circles. Repeat same in opposite direction.

2) Marching on place with exaggerated, coordinated arm movements. Be sure that extension of the affected arm equals that of normal arm and is brought down close to the body.

3) Springing movements with ankle, knee and hip flexion. Swing arms forward and backward simultaneously. If patient has tight heelcords insist that heels remain on floor throughout exercise. Otherwise heels should be raised, thus promoting better balance along with coordination. If patient develops enough spring and succeeds in raising the affected arm high enough, exercise can end in jumping, arms raised high to the ceiling.

Exercises 1, 2, and 3 should be done with "Indian clubs" as soon as patient is ready for it. The "Indian clubs" are extremely helpful in performing far swinging, big movements carried forward by the momentum rather than by the strength proper.

4) Clapping hands in front and in back of the body in order to train inward rotation and supination with the backward movement.

5) Jumping, alternating apart and together, as hands are clapped together overhead and then clapped onto the thighs in order to promote abduction and adduction of the arms.

6) A step hop to the side as both arms are swung laterally and upward to the same side, then repeat in same rhythm to opposite side to get synchronized movements of both arms. This can be varied with head and arms moving in opposite sides in order to discourage hiking of shoulder. This exercise again promotes our main objective, i.e. control of the whole body despite the disability.

Sitting with legs crossed:

7) Holding wand with both hands (palms down) in front of chest, a) push forward, b) high overhead, c) lower wand to back of head, resting on shoulder. Reverse to starting position. Repeat same with palms up.

8) Grasp wand as in exercise 7, arms extended forward raise one end of wand beyond vertical and then the other one in order to promote supination and pronation.

On hands and knees:

9) Crawling: Stress use of weak shoulder for support by raising good arm high off floor.

B) *General exercises suited for an "Erb's Class"* to promote good posture, symmetry, poise and balance.

Supine:

1) Pelvic tilt

2) Bicycle exercise.

3) Straight leg raising: Left knee flexed, arms resting at side: a) raise right leg to 90 degrees, while arms

extend overhead, b) bring right knee to chest, c) stretch right leg to position 1, d) return to starting position. Alternate.

4) Sitting up while knees are bent with arms forward or crossed in front of chest or with the hands behind the head.

Sitting in tailor fashion:

1) Shoulder circles: place fingertips on shoulders and make circles with elbows (if shoulder muscles are too weak or joint too tight, the good arm has to help to perform the motion).

2) Back pull: a) with hands locked behind head, bend from hip, keeping back straight and shoulder blades together, b) relax head, elbows and back towards the floor, c) resume position as in 1, d) raise trunk to vertical position. In this exercise the elbows are not supposed to be on a level in case the length of the arms is not equal or the tightness of the involved shoulder prevents an even pullback. But the shoulders have to be on a level, the spine has to be straight and the trunk symmetrical.

Prone:

1) Trunk raising with hands locked behind the head or with arms out to the side or with arms pulled backward with palms down.

2) Breast stroke. (Insist on use of latissimus, when arms are moved back to the trunk).

3) Push ups.

Kneeling:

"Indian Prayer:" a) sitting on knees and heels with hands together on back, bend forward from hip without bending back, b) slide arms forward still keeping back straight, until arms are stretched out along the ears. (Many of the children with Erb's Palsy will now have to support the weak arm with the strong one), relax back and arms toward the floor, d) push buttocks forward, walking on outstretched arms with hands on floor and the same way backward to position as in c), e) raise arms and trunk from floor, stand on knees, keeping arms high, f) come to starting position with pelvis tilted while slowly lowering arms.

Here again the stress is on the alignment of the trunk and the arms not even in length will have to adjust to it.

Standing:

1) Stand with feet together and arms overhead; bend alternately to the right and to the left side and then to the front with knees extended. Touch toes with fingers to stretch posterior muscle group. Come to starting position and lower arms slowly.

2) Stand with feet apart, hands clasped on the back: a) with shoulder blades adducted bend arched back from the hip, b) move arms up and down without changing position of back, c) move arms forward until they are extended along the head and bring them back again, without changing position of back, d)

bring arms up again, extend back and slowly lower arms.

3) Stand with feet together and hands behind head:
a) bend to the right side, b) twist trunk to the right, until shoulders are on level, while arched back is bent from the hip, c) raise back and return to starting position.

Reverse.

4) Stand with feet apart, hands stretched overhead:
a) bend down until fingers touch toes, b) slide hands along the legs up to hip, c) slide them down to toes again, d) swing arms and back forward until back is in horizontal position, arms still stretched forward, e) raise back to starting position and slowly lower arms.

Conclusion:

We have realized that the palsied arm is not the

only implication of Erb's Palsy. Therefore we treat the entity of the patient, an entity in which each individual bodily part has a bearing on all the others and where the whole of the body is in interrelation with the psychological processes of the child. That's why the bulwark of our treatment lies with the group work, where the children—learning from each other—find encouragement to overcome their disability and develop sound bodily habits and functions in spite of the residual damage. Endurance in fighting difficulties and good body control are decisive factors for the healthy maturing of body and soul, especially of those handicapped since birth.

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A PRACTICAL WEIGHT RACK

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The need for a practical, functional weight rack has long been felt. In many clinics different types of racks have been constructed but apparently these did not fill the need. The weight rack described in this paper (see illustration 1.) has been used for more than six months in a clinical situation and has proved itself to be effective and practical.

This weight rack provides a place for the hand weights, the bar bells and the exercise gloves. It is constructed against a wall between two mats, thus giving the rack a central location. This design decreases the distance which the therapist must travel in treating the patient and results in the saving of therapist time. The weights are in sequence graduated in pounds with the heavy weights on the bottom of the rack. With the weights in this order this rack becomes safer and easier for the therapist to manipulate to gain the proper position for lifting the heavy weights. After use, the weights are returned to their respective places on the rack, thereby keeping the floor of the clinic clear and orderly.

The construction cost of this weight rack is small and can be built with a minimum of effort and ability.

Summary

A new type weight rack has been designed and tested in clinical situation. This rack:

1. Reduces equipment damages.
2. Makes possible a more orderly clinical area.
3. Reduces the danger of injury to the therapists and patients.
4. Improves the treatment program of the clinic.

ACKNOWLEDGMENT

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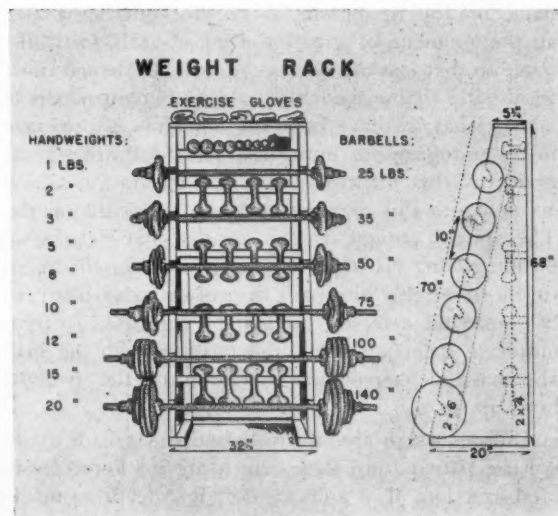


Illustration 1

- a. Special arrangements of weights and exercise gloves. b. Lateral view with measurements and construction details.

FACTORS RELATED TO THE RESTORATION OF LANGUAGE FUNCTION IN APHASIC PATIENTS

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Definition:

Aphasia is a disturbance in the ability to deal with language symbols in persons who have suffered some form of cortical brain damage. It is manifested by a disturbance in previously existing language ability. The most apparent disturbance is likely to be in speaking or in comprehension of the spoken word. And all language functions, however, may be disturbed. These functions are likely to include reading, spelling, writing, and arithmetic calculation. To a lesser degree, established abilities in the use of gestures and musical ability may also be disturbed. In its broadest sense, aphasia may best be thought of as a disturbance in symbolic formulation and expression. Aphasia is a disturbance in language because language is a system of symbols. Aphasia is a disturbance in speech because when we speak we use language.

Agnosias and *apraxias* are two types of disturbance which are frequently associated with aphasia but are on a lower symbolic level. *Agnosia* is the loss of recognition of objects, representations of objects, or of symbols. This loss precludes evaluation or interpretation. If a patient cannot recognize and so cannot distinguish one sound from another, he has an auditory agnosia. If, however, he is able to recognize a sound, if, for example, he can distinguish between the sounds of the word *water* and those of the word *candy*, but cannot get significance out of what he hears, he then has auditory aphasia rather than auditory agnosia. Agnosias may be in the auditory sphere, the visual, the tactile, or the kinesthetic. Specialized agnosias may exist for sounds, for printed letters, for geometric forms, for colors, and for movement. A common test of tactile agnosia (stereognosia) is to see whether the patient with eyes closed can recognize common objects placed in his hand (i.e. distinguishing between a key and a coin).

Apraxia is the inability to use tools or mechanisms in a purposive and intended way when factors such as muscle weakness, incoordination, or mental deficiency are not involved. The mechanism or tools may include parts of the body such as the organs or articulation, as well as devices employed for recording language such as a pen, a pencil, or a typewriter.

When a patient cannot write because he no longer knows what a pen and paper are for, he has apraxia. This is distinguished from *agraphia* in which the patient cannot write because he cannot evoke the appropriate symbol or combination of symbols to represent graphically the words he may have in mind. Agraphia is on the level of aphasia; apraxia is on a lower symbolic level.

Aphasia and Levels of Language Usage

In answer to the questions regarding which of the language functions are likely to be least disturbed, it can be said that in general aphasics are most likely to have the greatest difficulty with those language functions which cause normal persons the greatest amount of trouble; they will have the least amount of difficulty with those language functions which cause normal persons the greatest amount of trouble; they will have the least amount of difficulty with those language functions which rarely upset the normal individual. On different occasions, we all behave as if we were somewhat aphasic. For example, all of us have experienced the frustration of having a precise word or term elude us; of having someone's name on the tip of our tongue without being able at the moment of greatest need, to call forth the name so that it could be communicated. At such times we usually choose synonyms or round about means of saying what we have in mind. Somehow we manage to communicate our meanings. The adult aphasic experiences this difficulty, and the frustration which accompanies this experience, much more frequently. The aphasic patient tries to use the same devices we do for getting his ideas communicated. For the aphasic, however, his alternate devices are also likely to be somewhat defective, so that he continues to communicate defectively. On the receptive side he may also have defective comprehension of the symbols he hears or sees.

Abilities which are relatively undisturbed for many aphasic patients are those which are on lower levels of abstraction. Most aphasics do not suffer from much impairment in their abilities to use emotionally laden language. They can usually swear with a degree of fluency which is adequate for the situation and their needs. Most of them can count serially more

readily than they can tell you that the number 10 follows 9 or that 12 is preceded by 11. Similarly, the aphasic who once learned the alphabet by rote, is usually better able to recite all or part of the alphabet than he is to tell you what immediately precedes or follows the letter Q. Along the same line, the aphasic patient is better able to evoke the words of a song, especially when he is permitted to include the tune with the words, than he is to evoke an isolated sequence of words. In all of these low level language functions, the aphasic differs from the normal person mainly in degree. The aphasic maintains relatively well *those language functions which any non-brain injured person can perform mechanically and without thought*. He is more likely to have *increasing difficulty* with those language functions which require *greater thought* and more *careful intellectual control*. From a linguistic point of view, the aphasic patient's difficulty is not one of making sounds, or even of uttering words, but of using appropriate words in an *intellectually significant situation*.

The person who, after a brain injury, or infection, or some other involvement, is not able to utter words, or whose utterance is labored, is not necessarily aphasic. If the disability is purely of a motor nature the impairment might better be termed *dysarthria*, or if it is severe, *anarthria* rather than aphasia. Impairment of linguistic expression is not aphasic unless it represents a disorder of symbolic formulation or expression. For that reason it is probably best to drop the term motor aphasia and substitute for it the more inclusive term *expressive aphasia*.

The form of linguistic disability assumed in an aphasic disturbance cannot be determined solely by knowing the area of cortical injury. The linguistic disturbance associated with a cortical injury may vary greatly from patient to patient. For example, a visually minded person may suffer much more impairment from an injury to the occipital lobe than might an auditorially minded person. Similarly, a person with strong auditory imagery might suffer severe disturbance as a result of a cortical involvement which might leave the visually minded person relatively undisturbed.

Who becomes aphasic?

Although we know that the aphasic patient almost invariably suffers from a lesion involving the contralateral brain hemisphere, we also know that not all persons with such lesions become aphasic. It is our belief that factors of personality, intelligence, age, and cause of the brain lesion are associated both with the onset of aphasic disturbance and with recovery from the disturbance. Our hypothesis is that the rigid personality is more likely to become aphasic as a result of a brain injury than is the flexible, easily adjustable personality. It is our experience that persons

of high intelligence are more likely to suffer from aphasia, and proportionately to make a slower recovery, than are persons of average or low intelligence. Both the amount and the manner in which a person was educated have a good deal to do with whether a cortical injury will bring with it some kind of aphasic disturbance. In brief, the form of linguistic disability associated with a brain lesion is probably related to just about every experience the person has had up to the moment of the lesion.

Associated Defects

The adult aphasic frequently suffers from other defects which are neurologically or psychologically associated with the aphasia. Such defects as agnosia, apraxia, and dysarthria have already been mentioned. Additional sensory defects may be in the fields of vision, of hearing, or of feeling. All of these may interfere with the recovery of the patient from the aphasic disturbance itself. Motor defects which limit or discourage movement, or which make a motor performance effortful, are also likely to complicate the language rehabilitation of the aphasic.

On the intellectual side, aphasic patients are likely to reveal some reduction in their previous ability to deal with abstract concepts. We believe that this limitation is not as great as it superficially appears to be. The aphasic patient, if he accepts the realities of his disturbance, has less need and use for the abstract than does the well person. If he seems to abandon the abstract attitude he may, in fact, be working to improve his adjustment to his new mode of living. In short, the aphasic patient may realistically lower his level of aspiration and in doing so he may avoid dealing with abstract situations unless specifically required or encouraged to do so. What may appear to be an actual loss of abstract attitude may perhaps be better interpreted as a disinclination to deal with the abstract and a preference to concern himself more with concrete situations. In the field of language function we may therefore find an aphasic patient unable to use the abstract term "blue" but nevertheless able to talk about a "blue hat" or a "blue coat." Blue hats and blue coats are concrete situations with which the patient may continue to have direct experience. The abstract concept of "blue" is not likely to be of much practical use.

The change in abstract attitude may also be reflected in a reduction of functional mental ability. Our experience has been that for the adult aphasic, the apparent mental deficiency is considerably greater than the actual intellectual loss. No examinations have been devised which take proper cognizance of the sensory and motor disabilities of the aphasic in the examination inventory. We no longer test the deaf with intelligence tests standardized on the hearing; neither do we test the blind with examinations

for the sighted. There is no justifiable reason for examining the aphasic with instruments intended for persons who have no organic brain injury, especially because they are frequently associated with motor and sensory facts. Despite this reservation, there is little question that many aphasics do suffer from some loss in functional mental capacity and that some aphasics actually suffer significant loss in mental ability. Relatively few patients, however, suffer such severe loss as to become mentally deficient. That the loss of intellect is more apparent than real can be realized from the fact that in many instances gains of from 20 to 30 points on intelligence scales have been attained after a period of from three to six months of language retraining.

Factors Related to Recovery:

For the busy therapist, it would be most helpful to have some practical answer to the question, "How can I know in advance what kind of patient is most likely to benefit from my therapeutic efforts?" There is, of course, no absolute answer. We can, however, present some subjective observations based upon experience with many aphasic patients. For the adult aphasic, the following combination of factors make for a hopeful prognosis:

1. Comparative youth (preferably under 30).
2. Traumatic rather than vascular lesions or neoplasms.
3. Outgoing, flexible pre-morbid personalities.
4. Initiation of a training program as soon after the onset of the disturbance as the physical condition of the patient allows.
5. Average functioning intelligence.

The following combination of factors make for a more guarded prognosis:

1. Advanced age.
2. Spontaneous vascular lesions and progressive disease involving the brain cortex.
3. Rigid and withdrawn personality structure.

4. Delay in initiating a program after spontaneous recovery has leveled off.
5. A high level of intelligence.

Two final points should be emphasized in regard to the prognostic criteria. Each patient is a rule unto himself. Some older patients have done remarkably well and some young patients have not done well.

Every patient, unless he has a progressive brain pathology, benefits to some degree from a language training program as he does from almost every kind of therapeutic effort. The therapist may sometimes become discouraged because not enough improvement has become apparent after the expenditure of real effort on the part of the patient and the members of the rehabilitation team. For the patient, however, even a small amount of improvement may be of great significance. For a patient to become able to read, even though he cannot learn to write, is highly important. He is at least on the receiving end of written communication. If he learns to express simple needs, and so avoids embarrassment to himself and to others, he becomes less of a burden to persons with whom he lives, and less of a problem to himself.

The appreciation of this information about aphasics together with the establishment of realistic therapeutic goals should help reduce unnecessary frustration and failure for the therapist as well as the patient.

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HAVE YOU MET YOUR QUOTA?

"From Other Journals"

HERBERT S. TALBOT, M.D., "Toward a Concept of Rehabilitation," *The Journal of Paraplegia*, Vol. I, No. 4, 3-6, October 1951.

Even after the practice of exposing deformed infants to the elements to die had been discontinued, and when a cripple no longer went in dread of being killed because he was useless or repulsive, there were yet many centuries during which the best he could anticipate was alms. In time, sanctioned and encouraged by the church, there arose the notion of caring for these people, as of the sick or the blind, and asylums in which they could be looked after were established. One such, founded in France in 1657, and later to become the famous Salpêtrière, was designed as a place in which the infirm could find suitable work, thus jumping the gun on the rest of mankind by a couple of centuries or so. In this, as in other triumphs of human spirit, voices cried out in the wilderness before there were ears to hear.

Generally, however, the arrangements were merely such as to provide refuge and sustenance, with no idea of restoration to a place in the world and the joy of living. An expressed purpose, in fact, was to keep these unfortunates out of the way, lest by the ugliness of their deformities, they might offend the eyes and the delicate sensibilities of their normal fellows;—this is an epoch which offered public executions as an agreeable form of outdoor entertainment. Another aim, perhaps more practical, was to keep the streets and highways clear of beggars.

Strictly speaking, rehabilitation, as distinct from care and treatment, is not a new idea, any more than was the theory of the roundness of the earth in 1492. But the wide range of its present application and the awakening of public interest are new enough so that the general concept has not yet acquired sharp definition. Its aims have been occasionally misunderstood and its methods occasionally misapplied. Its techniques, borrowed from half a dozen arts and sciences,—medicine and surgery, mechanics, psychology, sociology, pedagogy, and others—have yet to be coordinated. There may be half a dozen people concerned with the rehabilitation of one man, each of whom quite sincerely thinks that his or her job is the essential one, and no one can say them nay for no one is yet wise enough to be judge of all.

The beginning of the modern trend can perhaps be traced back to early in the nineteenth century, by which time advances in orthopedic surgery had led to the establishment of the first institutions for the care and treatment of crippled children. As the number of such places increased, the scope of their activities expanded beyond the purely remedial, to include the training of those with residual deformities. Nothing significant was done for adults until about fifty years ago, when the conscience of the race perceived that this vast and tragic waste of human happiness was largely unnecessary. It has required the impact of two world wars to bring us up to date. For during and after those wars, current methods of treatment returned to the stream of life mutilated, deformed, and variously disabled but, for the most part, physically healthy young men in numbers not previously encountered. Never before had so many of the severely maimed survived in such generally good condition. Physically handicaps are no longer the mark of the congenitally afflicted, or the infirm, or those who never knew life otherwise. They are borne now, in large part, by vigorous young men who yesterday were the best we had, and who may still be so today. No less in peace than in war, many who would have died a few decades ago now survive, although not unscathed, crippling disease and the accidents of industry and transportation. All these have made the doctrine of rehabilitation a matter of everyday necessity.

Neither the disabled themselves, however, nor the public, or even those engaged in the work of rehabilitation, seem to be altogether clear about what needs to be done, nor what can be done, and a few serious fallacies have appeared. There is, for instance, a rather naive notion that practically all of the handicapped persons are potential world-beaters, eager only for an opportunity to display their great talents. This may have

arisen in part from a wide popular acceptance of the Adler theory of compensation, which can be supported by any number of individual instances, but seems to fall short of universal applicability. The fact is, of course, that the proportion of world-beaters among the disabled is the same as in the rest of the population, which is, to say, small. There are also, just as in the community at large, the lazy the stupid, the inept, and the unsocial. A great many healthy people without physical handicaps are content merely to get along, and some drift off the pathways of industry and virtue.

Considered in terms of character, aptitude, and good citizenship, it is wrong to expect that the processes of rehabilitation can add much, if anything, to what was there before the disability was incurred. Rarely, it does seem to happen so; but such instances are unfortunately balanced by those in which some fundamental capacity has been, in one way or another, irrevocably lost. Rehabilitation, from its original Latin meaning, means to restore, not to create. Having brought a patient to the best possible state of health, and provided such mechanical substitutes for his lost functions as are available, we must offer him training, in such degree and kind as he is capable of accepting, calculated to help him to attain a status of dignity and self-sufficiency. In most cases it can be done, although it is seldom easy. Persons without physical handicaps also fail, all too often, to achieve this end. What must be remembered is that, by and large, the quality of the finished product will depend upon the quality of the raw material that went into it. In adults, the raw material of habits, tastes, and social attitudes has already been largely determined. The impact upon the personality of a crippling illness or injury may help to modify these traits, but they are as easily thereby changed for the worse as for the better. Bitterness, disappointment, frustration, and the boredom of long illness, not to mention physical discomfort, are major impediments to the development of a secure and contented individual.

Another important misconception arises out of our national faith in mechanical contrivances as the answers to all human problems. In this there is the danger that lingering too long with the means, we may never reach the end. Many of our paraplegics, for instance, now own and operate motor cars, but we cannot, on this basis alone, call them rehabilitated. It makes good news pictures, but it isn't enough. The public, of course, must be kept informed of this work but there is no reason for supposing it unable to comprehend fundamentals; too often it gets only the window dressing. Sentimentalizing and over-simplifying are currently popular but highly uncertain means of education.

The gadgets are helpful, often necessary, and they are sometimes (not always, alas) almost miraculously efficient. But in our admiration for the ingenuity they represent, let us not forget that they are only tools designed to help in doing a job. Their mastery does not bespeak its accomplishment. No patient can be blamed for grasping at every mechanical and prosthetic device available, nor for believing that, so equipped, he will have mastered all his problems. It is inexcusable, however, for those whose task it is to train him to permit him ever to forget that none is so well helped as those who help themselves. The great task is not to fashion a man, since that has already been done, but to bring him to an awareness of his own capacities and help him to fulfill himself.

Nothing better illustrates the intensely individualistic philosophy which still prevails in the United States, despite the cries of alarmists, than the resistance so frequently offered to rehabilitative efforts. This is seldom overt, being far more often manifested by apathy or lack of interest than by actual hostility. But it is clearly evident that our people, even when disabled, do not take kindly to having their lives worked out for them, and the patterns of their existence planned, however benevolently. No point needs more earnestly to be stressed than the need for being humble with those we wish to help. The absence of such humility is responsible for many of our failures. The very heart and essence of rehabilitation is self-sufficiency; it cannot be nurtured if it is denied at the outset. The greatest handicap of a disabled man is not the physical impairment itself so much as the fear that, because of it, he may be unable to follow his own bent and make his own choices. These, after all, are the prerogatives of that freedom to which we pay such constant lip-service. The obligation which lies upon us is to show the patient that he can still make his own choices; it is not for us to make them for him.

This, of course, means that we must be prepared to teach, to encourage, to advise, but never to direct. It means too, that these men and women must be allowed to make their own mis-

takes, as we all have done. This may be very trying to the beholder, for it is not easy to be sympathetic with a course of action with which we disagree. Finally, it must be acknowledged that there are those who cannot be rehabilitated in the fullest. Some would not in any circumstances have become self-sufficient to the degree idealized in a free society, and for these we must be content with lesser achievements. It is no discredit to the whole work that not all of its results will be of equal excellence,—not as long as we recognize clearly the difference between a finished job and a makeshift.

The economic factor has brought further confusion to the issue. While it is quite true that financial need is an important stimulus to a man's determination to rise above his disability, it is also true, now as ever, that man does not live by bread alone. The concept of self-sufficiency should not be limited to the economic sense, although that obviously must be included. There are times, in fact, when I wonder if we are not deceiving ourselves, mistaking a make shift for a finished job, simply because a man is making a living. I expressed this doubt not long ago in an article written for a journal in England, and was interested in finding confirmation, in the next issue in a letter from a paralyzed reader. He wrote in part: "To so many people a return to work approximating to the sort of work done prior to injury is synonymous with a return to the natural order of things. There is surely much more in life than just being cooped up in a factory or an office. Mental health is surely the primary condition, and I remain unconvinced that the only way to achieve that is by finding the patient a job. Satisfaction at being economically independent will not, I submit, compensate in the long run for an uncongenial job."

No one but a fool denies the importance of earning a living. But simply to do so no more constitutes the complete rehabilitation of a disabled person than it would imply a complete and satisfying life for any other individual. Like the mechanical gadgets, it is a means and not an end. Any man, disabled or not, should do something with himself—something from the doing of which he can derive satisfaction and augment the sense of his worth as an individual, something from which, also, he can earn enough money to meet his particular needs. The true criterion of successful rehabilitation is not making a living but finding a satisfactory way of life.

Educators say of a college that its function is not so much to give its students learning as to open their eyes to the truth and teach them how it may be sought. Similarly, the process of rehabilitation must open a man's eyes to what he wants to do with himself and help him to achieve his aims. It is a process which must begin at the very onset of the disability, for it demands, from the beginning, a reasonably satisfactory adjustment by the patient to the modifications of activity which have been imposed upon him. And it is a process which, in its most successful application, never ends. For rehabilitation is not a sort of degree or mark of distinction granted at the end of a course. It is, rather, a state of being to which one aspires, more or less approximated in various instances, but never fully realized. It is a way of life.

Obviously, good health and its accompanying sense of physical well-being are highly desirable, and may be set down as essential prerequisites. Despite serious gaps in our knowledge, more is possible now in this direction than ever before. With certain exceptions, most disabled persons may now expect, regardless of their particular disabilities, lives of reasonable comfort and normal duration. In our enthusiasm over the fine results of our increasing medical and surgical skills, however, we forgot for a time that they were doing only half of the job. They were making life longer and more comfortable, but not necessarily more worth living. It was, perhaps, natural that when the medical profession began to assume in earnest its obligations in respect to rehabilitation, it should have emphasized those physical aspects for which the knowledge and techniques were at hand. Plastic surgery, prosthetic appliances, and the fine accomplishments of the relatively new specialty of physical medicine have all contributed immeasurably to equipping and preparing the disabled for useful and contented lives. But in themselves they may not get down to the essence of a man, and if he has not within himself the desire for accomplishment, his response to all these efforts will be at best mechanical. For all our methods of medical and psychological investigation, we cannot reach into the secret places of the heart. We may stimulate and persuade, but the essential response must arise in the patient himself, and the sooner this is generally realized, the sooner it is acknowledged that most of the things we have been calling rehabilitation are not that but only a means to it,

the sooner we shall have the results we want. Up to now, too much emphasis has lain on processes and techniques, too little upon the individuals to whom they are applied.

It is not too difficult to provide a man with a pair of artificial legs and teach him to walk upon them. The next question is where will he walk? There is no determination in the legs themselves, but the manner and direction of that determination are none the less a part of rehabilitation,—concededly the most difficult part. Paradoxically, it is just that individuality which we must so sedulously cultivate and encourage that places so many obstacles in the way of success. Unless it is encouraged, however, there can be no success worthy of the name. It is possible now for many, if not most, physically handicapped persons to get gainful employment without the onus of "made work." But in any given case we must ask as well, was this the work he chose for himself, or was it chosen for him? Was he discouraged from trying something else he preferred, or was encouragement lacking for a venture he wanted to try but feared to risk? Whatever aid he got, whatever training, whatever gadgets, was he permitted to make up his own mind, to choose in own way?

In promoting the cause of their rehabilitation, many have referred to the waste to society represented by disabled persons. The real waste, however, is not of so many mechanics or scholars or artists or scientists, but of the human beings who play these parts. The greatest danger a disabled man faces is not that he may lose his earning power but that he may, in boredom, apathy, and despair, lose the awareness of his own worth and dignity. The material phases of the problem, although not fully mastered, are at least well in hand. The time is come when, if the work is to be fruitful, we must reach toward those intangible values which give life meaning and savor,—toward a concept of rehabilitation which recognizes that man is, or is capable of becoming, a spiritual being. In this lies his capacity to overcome almost any physical handicap.

So the goals we seek in the rehabilitation of the disabled are none other than those we should choose to see established for all, handicapped or not. They are of the very substance of the democratic ideal and the American tradition. Nothing less will do.

MORSE P. MANSON and GEORGE V. DEVINS, "Some Psychological Findings in the Rehabilitation of Amputees," *Journal of Clinical Psychology*, Vol. IX, No. 65-66, January, 1953.

Rehabilitation workers are aware of differences in the course as well as in the degree of adjustment between different individuals with the same or similar disabilities. For example, studies in rehabilitation of paraplegic patients show that the pretraumatic personality is a significant factor in determining how the patient reacts to and accepts his disability. Where the pretraumatic personality was sound and was characterized by extraversion, high feeling tone, and not too much intellectualization, response to rehabilitation was good. This was also true where the family constellation was closely knit and there was little or no family friction. Psychopathic personalities reacted poorly, as would be expected.

Psychological findings in the rehabilitation of amputees reported by Manson and Devins parallel closely those found for paraplegics. These authors summarize their findings as follows: "Differences noted in rehabilitation activities undoubtedly are the products of personality structure and dynamics. If one is to hazard a prediction as to the course of rehabilitation, it would seem that the best criterion is the total life pattern of the individual with emphasis placed on techniques of meeting and resolving the frustrations and problems of daily living. Generally speaking, those who are inadequate, insecure, immature, neurotic and psychopathic will have more difficulty in making the best use of their resources; these are the poorer rehabilitation risks. The mature, well-adjusted person is the better rehabilitation risk." In arriving at their conclusions the authors made a rather detailed survey of the life histories and personal and interpersonal relations of their patients, and made group comparisons between those making good adjustment and those making poor adjustment to rehabilitation.

—A. D. MUELLER, Ph.D.

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Editorials

ACADEMIC BACKGROUND FOR TRAINING IN CORRECTIVE THERAPY

Editor's Note: Talk given at the Los Angeles Breakfast Club honoring Corrective Therapists in conjunction with the American Association for Health, Physical Education and Recreation.

Specialization is both the strength and weakness of the modern world. The remarkable developments of the past three centuries are largely the result of the great achievement and skill which come from a concentration in interest and training. This emphasis upon specialization has also been the chief cause of man's ineptness at those political and social skills that require the breadth beyond specialization which, in essence, is wisdom.

The demands of modern life are so many and complex that any reduction in specialized skill would threaten the whole process of industrialized living. The entire framework of this complex existence rests upon a multitude of highly specialized skills. To reduce them or eliminate them would probably collapse the whole system. On the other hand, this narrow expertness so reduces wisdom that man verges on general suicide. The only sound conclusion is that we must in some way have both specialization and wisdom.

As responsible educators plan the curricula for new specialties, care should be taken that the projected training provide for a good general education in addition to needed specialization. Accompanying the increased complexity of modern life is the development of various new professional specialties. One of the more interesting of these is in health and physical education. A definite name has not been settled upon. Some have suggested "ancillary therapy," others "corrective therapy." Pending further development, the term "corrective therapy" is used.

What do these general observations have to do with training for the specialized service of the corrective therapist? Very much indeed! To be effective in his field of work the corrective therapist must have a highly specialized training. He must not be certified to practice his profession without the prolonged specialized training necessary to a high level of skill in the best techniques of his art. But I believe he should have a background of general education as a foundation for this specialized skill. A carefully planned general training would serve at least three purposes: (1) the production of a more effective therapist, (2) the enrichment of the personal life of the therapist, and (3) the improvement of the therapist's effectiveness as a citizen.

A word about each of these values of a good general education for the specialist may be of interest. The worker in this field is dealing with people. This fact means that his success will depend not merely upon his manipulative or other specialized skills, but equally upon the skill he has in working with human personality. The degree to which and the manner in which the patient responds to the treatment will depend in no small measure upon the quality of the therapist's personality. All of us know the incomparable value of the bedside manner in a physician. A good general education thus should help to make the therapist a significant persons worth knowing and working with, as well as a skilled teacher.

At the same time, the corrective therapist is a person with a life to live. As all thoughtful observers know, many, perhaps most, of us in modern life follow a rather narrow, impoverished existence. This is as true, and sometimes more true, of the professional worker as it is of the man on the industrial assembly line. The professional man may in his rushed, overspecialization have narrowed his interests and dulled his sensitivities to such a degree that genuine joy and the accompanying mental and physical health are impossible.

The classical example of the personal effect of this narrowing of life is the great naturalist, Charles Darwin. In his later life he confessed with much sorrow that his ability to respond to the beauty of music and poetry had been destroyed. This poverty of personal life not only spoils the quality of the professional man's own life, but takes its toll upon his family and friends as well. An effective general education should do much to stimulate a development that will enrich the specialist's personal life.

The ineffectiveness of the highly specialized professional man in the area of citizenship is notorious. He may be unconcerned, as seemed to have been the case with the narrowly specialized German scholar or professional worker. He was inclined to spurn what he called politics until he found his academic freedom and integrity gone, or discovered himself exiled or in a concentration camp as a result of a government controlled by demagogues. Or the professional worker may simply be so poorly educated as to be ignorant of the duties and skills of citizenship in a democracy. Some acquaintance with history, sociology, psychology, political science, and even literature should increase his sense of responsibility and his wisdom as a citizen.

Practically, this wider ambition for the profession of corrective therapy means a curriculum carefully

planned to provide a good general background, as well as the specialized training necessary to maximum technical skill. For example, in the program offered for corrective therapists at Pepperdine College, in addition to his specialized courses, the student must complete a minimum of forty-five semester hours in a field other than his major. These general courses include a year of World History, a year of American History, including a study of the meaning of citizenship in a democracy, a year of English, and some study in psychology, religion, and the fine arts. Mere courses are, of course, not enough to give the breadth and depth of learning basic to wisdom, but all the courses, specialized and background, must be taught and studied so as to promote an understanding of basic principles. By these means it is hoped that the corrective therapist will not only be a skilled technician, which he must be, but also a wise effective person and a responsible citizen. The same principle, I believe, should apply to all professional and specialized training.

E. V. PULLIAS, Dean
Pepperdine College, Los Angeles

TEAMWORK IN REHABILITATION

Modern medicine has a rich tradition in humanitarian effort. It began centuries ago when members of the family performed some simple act of kindness that rendered the sick one in the family more comfortable. Despite the fact that these ministrations were completely devoid of supportive scientific evidence as to their values as therapies, many of the ill recovered. This happens today, but the picture is changing rapidly.

From these primitive or natural methods of caring for the sick the organized and well integrated care of the sick and disabled by carefully selected, thoroughly trained nurses and physicians, and the development of modern hospital facilities and equipment with trained laboratory technicians to operate them—the whole emphasis in medical care has changed. In the beginning it was relief from pain and discomfort; now, it is prevention of disease through adequate public health measures and education in health, a trend, with restorative medicine developing rapidly.

As people become more health conscious, through the development of programs of health promotion, especially in the field of mental health, the community has become more keenly aware of the new emphasis being placed on rehabilitation. This new emphasis is on wholesome living in all of its aspects. To assist the doctor in this tremendously important task, the development of many ancillary medical services or therapies, has become necessary. These ancillary services should be directed and controlled by

the physician. He should be the undisputed leader of this team, but as in the case of Pasteur the chemist, Leuenhoek the cobbler, Sister Kenney the Australian nurse, the contributions of all members of the team should be evaluated and integrated into this modern pattern of medical care.

As great care is used in the selection and training of Corrective Therapists, as in the selection of medical students. Medical curricula, as those in the field of physical education are constantly being improved. The attributes of intelligence, a pleasing personality, a retentive memory, accuracy in observation, skill of eye and hand are just as necessary in all of the ancillary therapies as in field of medicine. This combination of skill, scientific or artistic with an abundance of teaching ability, acquired or native, is just as essential for those to be trained in the ancillary therapies as is adequate training in the humanities, science and art, for physicians and surgeons. No one person or group can do well all that is required to rehabilitate the injured, handicapped or disabled. Each of the ancillary therapies has a special skill and only when effectively coordinated under the skillful direction of the psychiatrist in charge of the team, will the prophecy of Dr. William Mayo, made 27 years ago when he said, "Rehabilitation is to be a master work in Medicine," become a living reality, in the expanding program of modern medical care.

Corrective Therapy, one of the five essential ancillary therapies in the modern rehabilitation program, especially in the area of resocialization and reconditioning of the neuropsychiatric patient, is making significant progress in the establishment of approved graduate study integrated with clinical training, much of it by affiliation with medical schools. Such training opportunities are now available at several colleges and universities located throughout the country.

New horizons beckon. Industry has been recognizing the fact, that the handicapped worker has fewer accidents, when using machines, and his production rate is equal to, or better, than those without disabilities.

Communities are recognizing, that money spent for rehabilitation of the handicapped, pays dividends in human happiness and production, that can never be matched by the cost of increasing, by legislation, public assistance or welfare allotments. The number becoming disabled annually exceeds the output of the trained therapists. There is a shortage of physicians, surgeons, nurses, social workers and therapists who can be trained annually. Comparative figures show that there is an acute shortage of physical and occupational therapists. Trained Corrective Therapists graduated today with a master's degree are immediately placed in schools, rehabilitation centers and the

Veterans Administration Hospitals.

Many words have been spoken in defense of the need for teamwork in rehabilitation. Much writing, expounding the value and economy of teamwork in rehabilitation, has been published but team work in action, as demonstrated when understanding and cooperation between the therapies attempting to return the disabled to their communities in the shortest possible time; restored medically; retrained in a vocation of which they are capable and resocialized to take their places in the life of their communities, will the full meaning of teamwork in rehabilitation be realized.

DUES: VITAL TO OUR FUTURE GROWTH

All non-profit, professional associations are dependent upon the payment of annual dues from the membership as their main source of income. These contributions from individuals enable the association to finance its activities for the benefit of all the members. Dues of the individual member must be sufficient to accumulate a reserve that will not only support all of the activities but also provide the necessary funds for expansion.

Our dues are inadequate considering our rapid growth in the past few years. The membership is probably not aware of the fact that the Association News Letter is being underwritten by a friend who believes sincerely in the contribution our group is making to the total rehabilitation effort. The Journal is now paying for itself but is entirely dependent upon advertising for support. More advertising or an increase in dues is necessary before a monthly and an enlarged professional Journal is possible.

At the recent meeting of the Executive Board in Washington, D. C., it was the judgment of the group that an increase in the dues has become inevitable. A headquarters was established and this will require more income.* The history of most professional associations has shown that an increase of the amount of dues is a necessity unless other fund-raising methods are employed. The Executive Board anticipated that the 1953 membership drive would supplement the income so that an increase of dues might be temporarily postponed. The response thus far has been encouraging but is not enough. The drive must continue. New types of membership have been adopted. This will make many professional workers in allied medical specialties eligible for membership.

Even this will not be enough. The dues must be increased. This vital question will be on the agenda for the Representative Assembly Meeting in July at the Convention in Washington. Discuss this important step in your local groups and chapter meetings: It is actually not a question of "shall the dues be increased?" It is a question of "how much?"

*See p. (1) for Headquarters Address.

Chapter Activities

NEW ENGLAND CHAPTER

The first joint meeting of the New England chapters of the Association for Physical and Mental Rehabilitation and the American Association of Rehabilitation Therapists was held on January 24, 1953, in conjunction with the Regional organization of Music Therapists. This successful conference was attended by 125 persons representing hospitals, schools, and clinics in New England, New York and New Jersey. Organized as a conference on adjunctive therapies the meeting emphasized the various interpersonal relationships which develop in a rehabilitation program.

The morning session was devoted to individual business meetings. Present to speak to the members of the APMR were President Thomas Fleming and Treasurer Lou Mantovano. President Fleming reported on the activities of the Association on the national level including the coming Washington convention, professional standards, membership and legislation, while Lou reviewed the data he has received as a result of the educational questionnaires which were distributed during the past year.

During the afternoon the three groups met in a general assembly for the clinical session. The first speaker, Dr. Jacob Rudd, outlined briefly the growth of Physical Medicine and its various sections. He indicated that, while there was some minor overlapping in the duties of the sections, this was unavoidable and that, since all specialties arose from a need, the various therapies should work together to fulfill the objective of providing the best medical care possible within the limits of the individual department. Dr. Max Day discussed the importance of a good relationship between the therapist and the patient—emphasizing that it must be strictly on a professional level. Several case histories were cited wherein the relationships were of a non-professional nature to show the poor results which accrued as a result of this type of technique. Dr. Day also emphasized the importance of punctuality and truthfulness on the part of the therapist when dealing with patients especially within a neuropsychiatric program.

The patient's point of view regarding disability and rehabilitation was described in an excellent round table discussion by William Fitzgerald and Joseph Press. The speakers listed over-sympathy from solicitous relatives and friends as the worst of the many problems a permanently disabled person must face, and described the way that they wanted to be treated by relatives, friends and therapists.

"The Role of the Therapist in Physical Medicine and Rehabilitation" was the topic discussed at the meeting of the N. E. Society of Physical Medicine on March 18th. The Society met at the Boston V. A. Hospital. Representatives of the adjunctive therapies participated in the discussion.

EASTERN STATES CHAPTER

A recent activity of the Eastern States Chapter of the Association is the announcement of an Educational Clinical Session to be held at the Institute of Physical Medicine and Rehabilitation, 400 East 34th St., New York City. There will be an address of welcome by the President, Eleanor B. Stone, Dr. William Bierman, M.D., Chief, of Physical Medicine and Rehabilitation, Mt. Sinai Hospital, New York, will serve as chairman of the meeting. The speakers will be: Kurt Janssen, Chief, Rehabilitation Unit, United Nations; subject, "Current Plans of the United Nations in Rehabilitation," and Josephine L. Rathbone, Ph.D., Professor of Corrective Physical Education, Teachers College, Columbia University, who will present—"Rehabilitation in India." While this type of program is not easily arranged in all Chapters, it is illustrative of the type of program that is very desirable for all Chapters everywhere.

At the February 13, 1953 business meeting, the Eastern Section of the New York State Chapter voted to change its name to Eastern States' Chapter of the A.P.M.R. The states of New York, New Jersey, and Connecticut were included in this Chapter. This change was voted upon recommendation from the national committee on chapters and also from the legal committee of the national association. It was also brought forth

that chapters on a state level will be encouraged as soon as groups have a sufficient number of members to qualify for chapter status but there should not be more than one chapter per state. Warren Landon, Chief, C. T. Canandaigua, has been voted a vice-presidency in the newly formed Eastern States' Chapter. Mr. Landon in his new capacity can continue to afford excellent leadership to members of the newly formed group from his area, and in addition will serve on the executive board to assist other officers of this chapter in planning overall functions representing the Eastern States Chapter. A motion was also passed that the present slate of officers and committees carry on their functions in the Eastern States' Chapter.

The tentative constitution was provisionally adopted upon recommendation of the Constitution Committee. The Committee will study and revise the constitution if necessary so that it will be ready for adoption at a future meeting. We are also at work on a Code of Ethics for our Chapter. There should be ready for adoption in the near future.

MID WEST NEWS

Dr. Peter A. Volpe has been appointed as Manager, V. A.



Book Reviews



LAW OF HOSPITAL, PHYSICIAN, AND PATIENT, by Emanuel Hayt, L.I. B., Lillian R. Hayt, M.A., J. D. and August H. Groeschel, H.B., M.D., M.S., 804 pp. \$10. Prepared in collaboration with the American College of Hospital Administrators, 2nd edition, Revised and Enlarged, 1952 Hospital Textbook Co., New York, New York.

This is a complete and comprehensive textbook containing fifty-four chapters related to hospitalization, the practice of medicine, and the legal aspect as related to all phases of the care of the patient, both in illness and accident.

A revision of the first text containing hospital law, this new and enlarged book contains a combination of hospital administration and law. The major topics discussed are as follows: 1. The law and its administration; 2. Hospital organization and administration; 3. Hospital liability for personal injury; 4. Hospital services and administrative procedures; 5. Professional care of patient; 6. Confidential information and medical records; 7. Contractual relationships and obligations.

This book should be in the library of every hospital, administrator and physician. All personnel concerned with the treatment of the patient (the nurse, therapist, X-ray technician, laboratory assistant, etc.) would find the information especially valuable pertaining to the professional practice.

ADT

THIS HOSPITAL BUSINESS OF OURS, by Raymond P. Sloan, 321 pp., \$5.00, 1952, G. P. Putnam's Sons, New York, New York.

This book interprets the functions of the American hospital for the lay public. It explains briefly in everyday terms the numerous problems with which it is faced.

The first section of the book describes the background of hospitals, and the enormous sums of money involved in their operation. An analysis of the function of hospital departments, board of directors, administrator, and medical staff is outlined as the author takes the reader behind the scenes of operative procedures.

Following these basic facts, section two discusses the role of the trustee concerning the administration, fund raising problems, medical staff, personnel, etc.

A most interesting, informative and briefly written text. Hospital personnel such as physicians, nurses, administrators would find it most interesting and enlightening.

ADT

MANUAL THERAPY: By James B. Mennell, M.D., Consulting Physician in Physical Medicine, St. Thomas' Hospital; Vice-President and Hon. Fellow, Chartered Society of Physiotherapy, London, England. Lexide, \$2.25, 64 pages with 9 illustrations. Charles C. Thomas, Publisher, 301-327 East Lawrence Ave., Springfield, Illinois, 1951.

Hospital, Hines, Illinois. He was formerly associated with the V. A. at Aspinwall, Pa. He is a member of the Society of Physical Medicine and Rehabilitation, therefore vitally interested and active in the field of Rehabilitation.

Mr. Elias A. Ellis transferred to the V. A. Hospital, Hines, Illinois, from Canandaigua, New York. Mr. Ellis was Chief of Corrective Therapy and then held the position of Executive Assistant, Physical Medicine and Rehabilitation at Canandaigua before transferring to Hines as Executive Assistant of Physical Medicine and Rehabilitation.

The Physical Medicine and Rehabilitation Service at Hines V. A. Hospital have recently appointed three Physiatrists to their staff: Dr. Reuben R. Wasserman, Dr. Eugene H. Weissenberg and Dr. Erma A. Smith.

Physical Medicine and Rehabilitation is becoming more popular and to enhance the popularity even more, the Blind Center at Hines is making a film called "The Long Cane." This is an educational film telling the story of the use of the long cane by the blinded veteran. The producer is Dan Sidday. The following people from the V. A. Hospital at Hines, Illinois have been selected to participate in this new film: Russ Williams, John Malamazan and Evert Bjork.

For those who are plagued by the constant race against time, particularly as it concerns keeping or attempting to keep up with one's reading, this handy compendium will be welcome. In relatively few pages it contains a good deal of the practical essentials of message, therapeutic exercises and joint manipulation. Because the author is a physiatrist of excellent repute he may be allowed some liberty in taking a definite stand on certain questions which others might be prone to dispute. Certainly this does not detract from the value of this monograph. In fact, for the discriminating and discerning reader controversial material may well serve as a stimulus to consult larger works on the subject.

In the introductory chapter a few pages are devoted to the origin and history of the use of the human hand in therapy. The chapter on massage presents some common misconceptions regarding its value and application. The physiological effects and various forms of message are also described. Of unusual interest among the latter is the use of a "Bier's cupping glass" with attached rubber suction bulb presented as an adaptation of the manual treatment of skin-rolling. Passive, assistive and resistive movements are discussed in three short chapters. The latter should be of particular interest to corrective therapists. Dr. Mennell prefers to substitute the term "Relaxed Movement" for passive movement and wisely sets forth his arguments supporting his preference. The final chapter is on joint manipulation, forced movement, as well as its applications and rules to be observed.

The subject matter is clearly and succinctly presented in keeping with a work of this size. Some of the finer points of the therapeutic modalities described herein are well outlined with proper emphasis on suitable precautions. The value of this monograph would have been enhanced had an index and bibliography been included. I believe it is particularly important for monographs like this to have a list of references for the more diligent reader. Nevertheless, this little volume can be highly recommended as a worthwhile evening's reading and as an addition to the personal library of those concerned with the aforementioned forms of therapy.

Frederick J. Balsam, M.D.

DIAGNOSTIC MANUAL IN SPEECH CORRECTION: A Professional Training Workbook, by Wendell Johnson, Ph.D., Frederic L. Darley, Ph.D., and D. L. Spriesterbach, Ph.D., 222 pp., \$2.50, Harper and Bros., 49 E. 33 St., New York 16, New York

Diagnostic Manual in Speech Correction presents for the first time a single text containing standardized sets of diagnostic forms pertaining to all of the major speech disabilities. The authors suggest outlines to be followed to aid in obtaining the salient case history information. The therapist is then provided with an individual diagnostic form which when administered reveals those features of the speech defect that aid in both the evaluation and planning of the speech therapy program.

Where it is felt by the authors that the reader may desire more information than is offered in the introduction to each of the diagnostic forms, excellent references are suggested.

This manual will be immediately recognized by all engaged in the speech field as an extremely valuable tool for use in teaching, diagnosis, and therapy.

ADT

News and Comments

AWARDS COMMITTEE

The following members of the Association have signified their willingness to serve on the Awards Committee: Sam Boruchov, Area I; Chris Kopf, Area II; John Dixon, Area III; Leon Edman, Area IV; Harlan Wood, Area V; and Burr Zachary, Area VI. These members were selected for this committee to give representative to the membership throughout the six geographical areas recognized by the Association. Each committee member is an elected representative of the Association, being either a member of the Representative Assembly or a Chapter Officer. In addition, they are for the most part charter members of the Association and well qualified to carry out the functions of the Awards Committee.

The over-all objective of the committee is to evaluate the present award system and to recommend any changes that are felt necessary to register improvement. It must assist in the selection of candidates for the various awards and see that they are prepared and presented to worthy recipients.

At the present time committee members are receiving recommendations for the candidacy for the John E. Davis Award. This award is given annually in honor of the founder of our Association and is designed to recognize outstanding accomplishment in the field of rehabilitation. All recommendations should be accompanied by a statement of accomplishment.

The Award was initiated in July of 1951 in Los Angeles by an official act of the Board of Directors and the Representative Assembly. The first award was presented to Dr. John E. Davis for his outstanding leadership in the field of rehabilitation. The formal presentation took place at the Sixth Annual Convention held in Milwaukee, Wisconsin, in 1952.

Suggestions from the membership for ways and means of improving the present system for awards will be appreciated by the committee.

EXERCISE THERAPISTS WANTED

Vacancies exist for Exercise Therapists, grade GS-5, \$3410 per annum, at Fort Meade, South Dakota, V. A. Hospital and VAMTG Hospital, Memphis, Tennessee. Applicants must have successfully completed the requirements for graduation from a school of physical education or an accredited college, university, or teacher-training institution with a major in physical education, or study which included or was supplemented by at least 24 semester hours toward such a major.

At least 20 of the 24 semester hours must be in such courses as corrective and remedial exercise, physiology of exercise, principles of physical education, techniques of sports and games, hygiene, first aid, methods or principles of teaching physical education, therapeutics, sports for the physically handicapped, mental hygiene in physical education, physiology, kinesiology, human anatomy, psychology, or pathology. Four semester hours may be in such basic related courses as bacteriology, physics, chemistry, or biology.

In addition, this education must have included or been supplemented by at least one course in clinical practice in therapeutic exercise in which patients participate upon prescription of a doctor of medicine. (Six months of such experience may be presented in lieu of this course.)

THE INCREASE IN LIFE EXPECTANCY—FOR WHAT?

(Taken from The Rehab Counselor of the Vocational Rehabilitation Division, Tennessee Department of Education)

Improvement in the health of the American people since 1900 constitutes one of the great achievements of the past half century. It has been estimated, from fossil findings, that in pre-historic times, the average man lived about 18 years, his life frequently terminating in violent death. This had advanced to around 25 during the time of the ancient Romans and by 1900, in the United States, had reached an unprecedented 49.2, a gain of nearly 100 percent in 2,000 years. From an average lifetime of man's life expectancy in the United States to 67.2 years, a gain of more than 18 years in less than 50 years.

When asked at the beginning of 1950 to comment on the events of greatest significance which had occurred in the first half of this century, Mr. Bernard M. Baruch, with his usual sagacity, listed the increase of man's life span by 18 years in a period of 50 as having more profound medical, economic and social implications than such things as atomic energy, air transportation and communication. The problems which we face as a result of increased longevity are problems which extend far beyond any one discipline, agency, or group; they are problems for the nation as a whole.

The society which fosters research to save human life cannot escape responsibility for the life thus extended. It is for science not only to add years to life; but more important, to add life to the years.

Until medicine finds the specific answers to the problems of the diseases of the heart and circulation, rheumatic fever and arthritis, cerebral palsy, multiple sclerosis, poliomyelitis, and other crippling diseases, we must utilize the techniques of physical rehabilitation, psychology, social service, vocational counseling, and the auxiliary specialities to teach the disabled to live within the limits of their disabilities but to the full extent of their capacities.

ARNOLD LERMAN A BUSY INVENTOR

Arnold Devices, Inc., have developed such devices as hand controls which permit the disabled to drive cars—a new hand control, that is not only an improvement over the original, but also adapted to cars with standard conventional shift. This new hand control will operate the gas, brake and the clutch. Lerman also has a device that will permit the handicapped driver, to raise, or lower, the headlight beams of this car. Arnold Devices have opened to the handicapped many doors formerly closed to him by marketing a lever that narrows the collapsible wheel chair.

Among his latest devices for the handicapped, in addition to the new hand controls already mentioned above, is an elevating seat for collapsible wheel chairs. This will facilitate the transfer from a bed to the wheel chair, wheel chair to a car, and vice versa. Lerman also introduced the *Ambulette Service, Inc.*, one of his latest ideas, which provides a means of transportation for wheel chair riders, or those otherwise incapacitated. *Ambulette Service, Inc.*, has available, for nominal weekly or monthly rates, on a 24 hour call, a Cadillac limousine, with chauffeur, in which can be carried a wheel chair, thus permitting the passenger to be transported to his destination without having to leave his wheel chair.

Arnold Devices, Inc., also operates an auto-school, Arnold Auto School, Inc., teaching paralyzed, and other disabled, persons to drive hand controlled cars. His cars are dual controlled, and best equipped insofar as safety is concerned. Ten 1-hour lessons will cost the learner \$45., and when he is ready to apply for his license, Arnold's school will take him for his driver's test. Arnold is now in the midst of designing a new type of wheel chair that will go up steps.

For further information re: any of the above devices, ideas or services, write or visit Mr. Lerman at 310 East 34th St. New York or call LExington 2-5989.

POSITIONS ACCEPTED

H. Harrison Clarke, Director of Graduate Study at Springfield College, Springfield, Massachusetts, has accepted a position as Research Professor of Physical Education at the University of Oregon. He will start his new duties in September.

Harvey E. Williams, Associate Professor of Rehabilitation at Springfield College, has accepted a position with the San Francisco State College, San Francisco, California.

We, of the association, wish both of these men "The Best of Everything" in their new challenges.

NEW REHABILITATION BOOK

Everest and Jennings, pioneer manufacturers of folding metal wheel chairs, announces that they are stocking in quantity a new manual titled "Physical Rehabilitation for Daily Living."

The book is an illustrated manual for the—as a patient once said, "all the little things that make you miserable when you cannot do them . . . like putting on your shoes, or eating your soup, or switching on the light, or getting from the bed to the wheelchair, or walking through a door." These are the things which make the difference between constantly needing help and being on one's own.

The author stresses that the only way of learning these ac-

tivities is through exercise. So the purpose of the book is "to continue teaching methods for a basic exercise and daily-activity program for patients with disabilities of the lower extremities." Topics covered include functional training, bed and mat exercises, wheel-chair exercises, self care, ambulation, elevation and travel on crutches, and special problems concerning wheel chairs, braces, A.D.L. testing, and equipment and furniture for A.D.L. More than 475 photographs illustrate the manual.

The author of the book is Edith Buchwald, Director of Rehabilitation Courses for Physical Therapists at the Institute of Physical Medicine and Rehabilitation, Bellevue Medical Center, New York University. Collaborators were Drs. Howard A. Rusk, Chairman of the Department, George C. Deaver, and Donald A. Covalt. The book was published by McGraw-Hill.

"Physical Rehabilitation for Daily Living" may be ordered from Everest and Jennings, 761 North Highland Avenue, Los Angeles 38, California. The price is \$7.50 per copy.

MONOGRAPHS OF M. S. SOCIETY

Harold R. Wainerdi, M.D., Acting Medical Director, has written the editor: "We are extremely anxious to cooperate with those who are working in the field of multiple sclerosis and when supervised by physicians our material is available without charge. On the other hand, where this material is to be used for other interests, we are compelled to make extremely modest charges for publication and shipping. I know you will appreciate the fact that our Society is supported by contributions from patients and their relatives whose principal interest is multiple sclerosis and as much as we would like to do so we cannot begin to supply our material when it is to be applied elsewhere."

A copy of the order blank appears below:

Multiple Sclerosis—Application for Rehabilitation Techniques, 50c each. A Home Program for: Independently Ambulatory Patients; Patients Ambulatory with Aids; Wheel Chair Patients, and More Confined Patients, 25c each. These monographs may be purchased from the National Multiple Sclerosis Society, 270 Park Avenue, Suite 7G, New York 17, New York.

It is believed that many of our members will want to secure copies of these educational monographs and inform others where they may be procured.

MEDICAL SURGICAL CONFERENCE— BAD KREVNACH, GERMANY

Lieutenant Lester W. Daniels, M.S.C., Physical Reconditioning Officer, at the 20th Station Hospital and formerly at the VAMTG Hospital, Memphis, Tennessee, has sent a copy of the program of this conference. "C. T.'s" in the United States will be interested to know that "Les" presented a paper on—"What the Medical Officer can Expect from Physical Reconditioning." Excerpts from "Les'" paper appeared in the January issue of the Medical Bulletin of the U. S. Army, Europe. He promises the paper for the Journal when approved by the Surgeon General's Office. The paper contains a comprehensive Bibliography.

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2. Julia Singer Haller and Arno David Gurewitsch: An Approach to Dynamic Posture Based on Primitive Motion Pattern. Arch. Phys. Med. 10: 6333. 1950.
3. Julius Wolff: "Gesetz der Transformation der Knochen" in R. W. Lovett: "Lateral Curvature of the Spine," Boston 1912, ch. 3, p. 40.
4. V. T. Saunders, Le Roy C. Abbott, V. T. Inman in "Journal of Bone and Joint Surgery," Vol. XXVI, No. 1, pp. 1-30. Jan. 1944.
5. The writer studied the methods of Detlef Neumann-Neurode in his School for Baby and Children Gymnastics in Berlin, Germany.

TWO CORRECTIVE THERAPY DEVICES CITED IN MANAGEMENT IMPROVEMENT BULLETIN MIB3

The March issue of this Management Improvement Series, contains illustrations of a Wheel Chair Adapted for Above Knee Amputees and an Adjustable Thigh Spreader. The wheel chair device was developed by Leslie Root, V. A. Hospital, Wood, Wisconsin. The Adjustable Thigh Spreader was developed by Charles H. McHugh, VAMTG Hospital, Memphis, Tennessee.

Before the development of the wheel chair device, many above knee amputees developed flexion contractures in the hips from

sitting incorrectly in their wheel chairs. Once contractures developed, it was almost impossible to fit such patients with a prosthetic device. After using this device for eight months the seven patients who used the device were approved for fitting of prosthesis. Four patients had hip contractures of from 10 to 30 degrees flexion prior to using this special device. Three patients who did not have contractures, but might have developed them unless preventative measures were taken, also used the chair.

Before the development of the Adjustable Thigh Spreader, there was a need for a mechanical device to spread the thighs of patients with adductor spasticity. After this device was developed it was found to help relax spasticity prior to brace ambulation; to help prevent decubitus ulcers by keeping the thighs apart; to serve as a mechanical aid in correcting certain deformities when a patient cannot be operated on and in cases of marked spasticity to simplify the giving of enemas.

It is the invention of such devices that help both patient and therapist to speed recovery. The satisfactions and economic advantages derived from the Veterans Administration Incentive and Efficiency Awards, continue to stimulate Corrective Therapists to be on the alert to increase job efficiency and performance. Report your latest device, it will help others.

REHABILITATION MAJORS' CLUB

Graduate Students in the Rehabilitation major at Springfield College have organized a Rehabilitation Majors' Club with Gil Wolf as Chairman and Harvey Williams as faculty advisor. The purpose of the club is two-fold in that it will help develop the students professionally beyond the classroom activities through meetings featuring speakers, films, study projects, etc., and as a vehicle through which they may get better acquainted by sponsored social events and recreational activities.

This being a new thing, the students would like to exchange ideas and suggestions with other similar college groups.

At the initial meeting of this club, Corrective Therapists, Ambrose LaVigne and Frank Deyoe, led an informal round table discussion on "Problems of the Beginning Corrective Therapist." Considerable interest was shown in the questions relating theory to practice, patient-therapist relationships, professional ethics and the relationships between the adjunctive therapies and the physicians.

Correspondence is invited and should be directed to: Mr. Gil Wolf, Box 508, Springfield College, Springfield, Mass.

HOUSE COMMITTEE ON EDUCATION AND LABOR, DINNER GUESTS OF AMERICAN FEDERATION OF THE PHYSICALLY HANDICAPPED

Members of House Committee on Education and Labor, at a dinner sponsored by the Federation, at the National Press Club Auditorium February 19.

Speakers outlined the need for a program for the physically handicapped as contained in the pending bill to establish a FEDERAL AGENCY FOR HANDICAPPED. Admiral Mahlon S. Tisdale, USN-Ret., gave the veteran's viewpoint; Jennings Randolph and Arthur Clarendon Smith, that of the business man; Dr. Merle E. Frampton, Principal, New York Institute for the Education of the Blind, the educators; Dr. William Thornton Spence, the physicians; while John M. Baer, famed cartoonist and representative of the AFL Union Label and Service Trades Department; Robert Oliver, Assistant to CIO President Walter Reuther, and James Mark, Jr. National Legislative Representative, United Mine Workers, presented the case for Labor.

Paul A. Strachan, President, American Federation of the Physically Handicapped cited the inadequacies of the present Federal-State program, and the need for immediate enactment of the FEDERAL AGENCY FOR HANDICAPPED bill, showing that of the 30,000,000 in some degree now disabled, more than 7,000,000 are from 60% to 100% disabled, and some 350,000 are disabled annually, in industry alone, while the Federal State program only processed some 61,000 of these, in 1952. These significant statistics show the magnitude of the problems of Physical and Mental Rehabilitation.

NEW ENGLAND AREA NEWS

The National Society for Crippled Children and Adults has notified Dr. Jacob Rudd, Assistant Chief of Physical Medicine at the Boston VAH, that his article "Total Education of Physically Handicapped Children," which appeared in the Corrective Therapy Journal, has been included in the bulletin on Current

Literature for workers with the handicapped.

Recent transfers of PMRS Personnel in New England have Dr. John Bisgrove returning to Cushing VAH as Chief, PMRS. He replaces Dr. Fritz Friedland who has transferred to the Boston VAH as Chief, PMRS. Dr. Sidney Licht, formerly at the Boston hospital has returned to his position at the V. A. Area Headquarters.

Several items have been seen recently describing the new 3 million dollar rehabilitation center sponsored by the New Hampshire Society for Crippled Children. The center is located at Crotched Mountain, near Greenfield, N. H., and about 68 miles from Boston. Announced objectives of the center are a continuous program for physical restoration and related rehabilitation services for physically handicapped children and adults. Residents of New Hampshire in need of service who cannot pay will be admitted free, but service costs for out-of-state patients will have to be paid for from some source. The first activities for the adult program of the center are expected to begin this spring. Included in the plans are a farm and the installation of equipment for teaching various trades.

Charles Bader, Chief of Corrective Therapy, and Corrective Therapist, Pat Perrino, from the Togus V. A. Hospital in Maine, have been guest speakers for the Community Service Clubs.

Recently, Mr. Bader spoke to the Gardiner, Maine, Rotary Club at their noon luncheon. He stressed the importance of Corrective Therapy as it relates to the physically and mentally disabled patient. This included aiding the patient to care for his daily needs so that he could lead a more independent and useful life; helping the patient to return to more adult behavior through active participation in exercise and activities which stimulate social awareness.

As a result of his Rotary talk, Mr. Bader has been invited by the Deputy Commissioner of Education for the State of Maine to address the state Principals' Association at their meeting on May 1st. It is expected that some 200 secondary school principals will be present at this spring meeting.

Mr. Erastus Pennock, Professor of Physical Education at Springfield College, and an active member of our organization, has completed plans for his sixth year as director of the West Springfield YMCA pool program for the handicapped. Under medical supervision and financed mainly through the efforts of the West Springfield "Y," Mr. Pennock has supervised a group of therapists and physical educators in conducting a therapeutic recreational program, which has gained national recognition, for all ages and types of handicapped people.

Graduate students in "Physical Education and Recreation in Rehabilitation" at Springfield College are making a significant contribution to research in the field this year. Fifteen members of the group are working on a Masters degree thesis in studies involving muscle fatigue, conditioning, and cross education. Most of the work is jointly sponsored by Springfield College and the Quartermaster Corps of the Army and is being directed by H. Harrison Clarke, Director of Graduate Study, and Donald K. Mathews, Laboratory Supervisor.

Vincent W. Anderson presented a short discussion on the subject "What is Corrective Therapy?" to the Women's Club of the Framingham Baptist Church. "Vince" outlined a complete corrective therapy program which included an explanation and demonstration of various self-aid devices used in the rehabilitation of quadriplegic patients.

HANDICAPPED HOLD IMPORTANT PLACE IN OUR ECONOMY

Leading the program in the opening sessions of the Third National Conference on Placement of Severely Handicapped, sponsored by the American Federation of the Physically Handicapped, at the American Legion auditorium, Mrs. Ivy Baker Priest, Treasurer of the United States, said the handicapped should hold an important place in our economy structure and praised the American genius for doing so much for the amputees.

Mrs. Priest's talk followed a demonstration by amputees of the new devices on artificial limbs, which was directed by General F. S. Strong, National Research Council's Committee on Artificial Limbs. The demonstration was with five amputees, four veterans and one civilian.

The orthopedic equipment consisted of cineplastic limbs, including legs with hydraulic knees. The amputees who demonstrated the artificial limbs were: Herbert Kramer, Long Island, New York; Sergeant Alfonso Spencer, Red House, Virginia;

Lieutenant Daniel Dennehy, Walter Reed, AF, Forrest Glen Annex; Lieutenant Albert Clark, Walter Reed, Forrest Glen Annex, and Allan McCague, Columbia University.

General Strong said, "We are trying to arrange for a worthwhile program for all amputees, war veterans or civilians, who need artificial limbs as a result of accidents, disease or battle. We are arranging for a nation-wide educational program on artificial limbs for upper extremities. Those who lose arms are in need of such a program. So, for further research and education we have established a school at the University of California, at Los Angeles, for limb-fitter therapists. There will be ten sessions of six weeks each, for the study of new devices, for the next year or so. So much can be done for men who lose arms and any part of their upper extremities. Surgeons and doctors are not completely familiar with new devices so they are invited to attend this school."

CLINICAL TRAINING APPROVED

Springfield College has become officially affiliated with the U. S. Veterans Administration for the clinical training of physical educators for work in hospitals and institutions for the handicapped, college officials have announced.

Springfield's new recognition was established this week through the Washington Office of Dr. A. B. C. Knudson, Chief of Physical Medicine and Rehabilitation in the V. A. Central Headquarters in the capitol.

The new arrangement between the college and the V. A. is the first college graduate program of its kind established in the country. The purpose of the affiliation is to train men for physical education, recreation and rehabilitation positions in specialized institutions for the handicapped, including hospitals operated by the Veterans Administration.

Thirty Springfield College graduates now studying in the major will begin full time resident field work experience in four veterans hospitals beginning in June. Two weeks of residence are scheduled for the Northampton V. A. Hospital followed by a month of residence in either Cushing Hospital in Framingham, the Boston V. A. Hospital or the Brooklyn V. A. Hospital.

In addition to placement in V. A. hospitals, Prof. Harvey Williams, faculty adviser to SC students studying in the major, stated that through this program Springfield College "has made and will make a significant personnel contribution not only to V. A. hospitals but also to state institutions and schools for specialized education for handicapped children."

Through the years Springfield has placed hundreds of its graduates of rehabilitation in schools and institutions for handicapped patients. The new honor given the college is in "recognition of the fine work done by Springfield in preparing physical educators for work as corrective therapists in V. A. hospitals." Dr. Arthur A. Esslinger, director of physical education, and Dr. H. Harrison Clarke, director of graduate study, supervise the rehabilitation program at the college.

MEETINGS OF PROFESSIONAL INTEREST

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| May 4-9 | American Psychiatric Association, Los Angeles, California |
| June 1-5 | American Medical Association Annual Convention, New York City, N. Y. |
| June 14-20 | 30th Annual Conference of the American Physical Therapy Association, Dallas, Texas. |
| June 22-26 | Convention of the National League for Nursing, Cleveland, Ohio. |
| July 20-24 | Annual National Convention of the Association for Physical and Mental Rehabilitation, Mayflower Hotel, Washington, D.C. Dr. John E. Davis and Mr. Tom Swierlein, Co-chairman, Veterans Administration, Central Office, Washington 25, D.C. |
| Aug. 31
Sept. 4 | 31st Annual Conference of the American Congress of Physical Medicine and Rehabilitation, Palmer House, Chicago, Illinois. Walter J. Zelter, M.D., Chairman, 30 N. Michigan Ave., Chicago, Ill. |
| Aug. 31
Sept. 6 | The World Medical Association, Amsterdam, Holland |
| Sept. 7-12 | The World Congress of the World Confederation for Physical Therapists, London, England |
| Sept. 14-19 | International College of Surgeons, Hotel Waldorf-Astoria, New York City, New York. |

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WHO ARE THE PHYSICALLY HANDICAPPED?

The term "physically handicapped" is a relative term. It must be qualified by the question, "Handicapped for what?" It must be considered in relation to a specific job. Less than one percent of us are physically able to do all types of work. Most of us are "handicapped" for some jobs, so disability becomes a matter of degree. Many thousands of physically handicapped men and women are successfully supporting themselves and their families through useful work. They are proving every day that—

"It's not what you've lost but what you have left that counts."

Are Your Hiring Practices To Your Best Interests?

HAVE YOU STOPPED TO CONSIDER THAT—

Very few jobs in any office, workshop or factory require physical perfection?

You are faced with manpower shortages that may become more severe?

Handicapped workers constitute a reservoir of available manpower?

The millions of disabled workers now employed in industry, business, and government have proved their competence in every field of endeavor?

There is a Vocational Rehabilitation office in your area that can assist you in developing your plans?

Do You Know How Handicapped Workers Compare In:

PRODUCTION?	Impaired workers, as a group, produce at slightly higher rates than unimpaired workers on the same jobs.
SAFETY?	Disabling injuries—impaired persons sustain fewer disabling injuries than non-impaired persons exposed to the same hazards.
QUIT RATE?	There is no significant difference between the voluntary quit rate of impaired workers and other workers.
ABSENTEEISM?	Physically impaired and unimpaired workers have about the same absenteeism records.
ABILITIES AND SKILLS?	The handicapped have the same wide range of skills, abilities and interests as the non-handicapped.

(Taken from "The Rehab Counselor" of the Vocational Rehabilitation Division,
Tennessee Department of Education, Nashville, Tenn.)

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Greetings . . .

FROM CONVENTION HEADQUARTERS

Association for Physical and Mental Rehabilitation

Annual Clinical and Scientific Conference

7th Annual Convention

Mayflower Hotel, Washington, D. C.

July 20 through 24, 1953

Washington is indeed proud to be the host city to the 1953 convention of the Association and will have a most hearty welcome for every visitor. There isn't another city in the United States that the slogan, "BRING THE FAMILY TOO!" would fit as appropriately as Washington, our nation's capital. Our meeting dates were chosen especially so that you and your families could combine convention and vacation.

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The convention hotel is adjacent to the White House and other Government Buildings. Special arrangements are being made so that guided tours will be available to our delegates and their families.

For your dining pleasure while in Washington you will find that there are ample restaurants which are excellent and offer cosmopolitan menus to suit a variety of tastes and budgets. Many of the city's more noted restaurants provide dancing and entertainment after dark.

Legitimate theaters, movie houses and sports arenas offer the best in entertainment the year 'round.

The convention program is rapidly taking shape

and a tentative listing of the topics and the participants will appear in subsequent issues of the Journal and the Newsletter. The general pattern of presentation—the panel discussion, which was so successful at Milwaukee last year, will again be utilized. A different plan for conducting the business of the Association will be followed this year. The Executive Board will meet Saturday and Sunday prior to the opening of the convention; the Representative Assembly will meet all day Monday, July 20th, and the General Assembly meeting will be held on Monday night. The Convention Committee and your President feel that this innovation will be well received.

Several special events are being planned both in the scientific and entertainment vein. The annual banquet will be held Thursday night, July 23rd at which an outstanding physician will speak and the John Eisele Davis Award will be presented.

The commercial exhibits will be located immediately adjacent to the main assembly room and a most representative group of manufacturers of rehabilitation equipment will be in attendance.

This is YOUR convention—your officers and the Convention Committee can only make the arrangements for a meeting of this type but the success of the convention depends upon each member of the Association making every effort to attend. WE WILL BE EXPECTING YOU—REMEMBER—D. C. IN '53.

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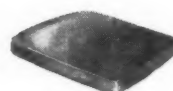
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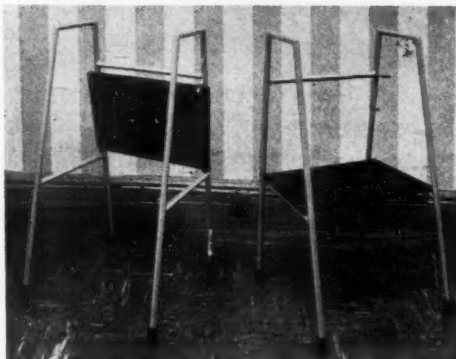
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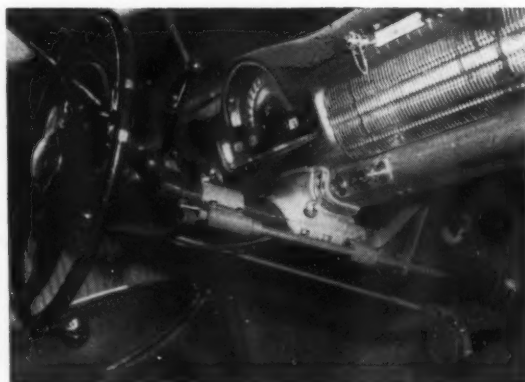
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